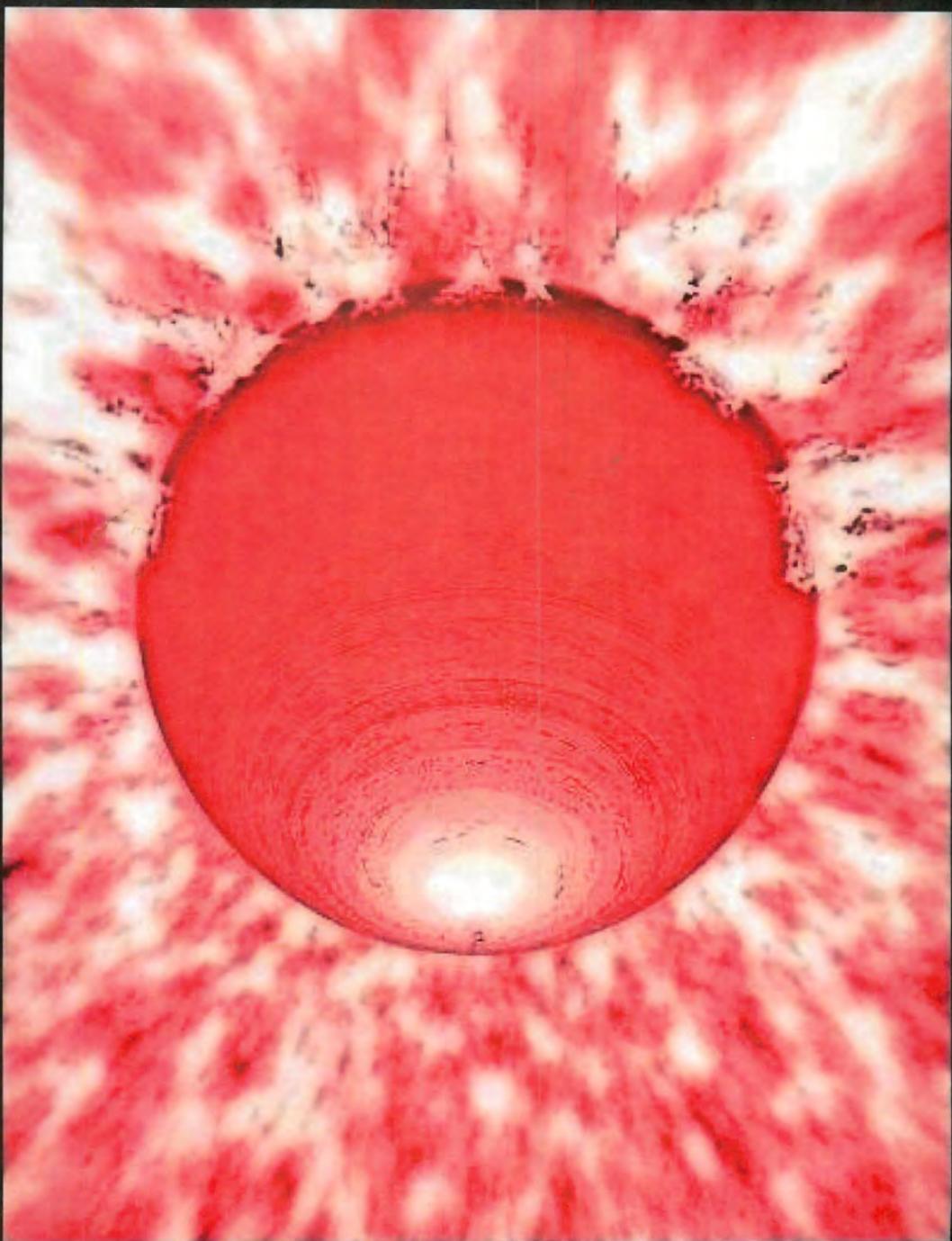


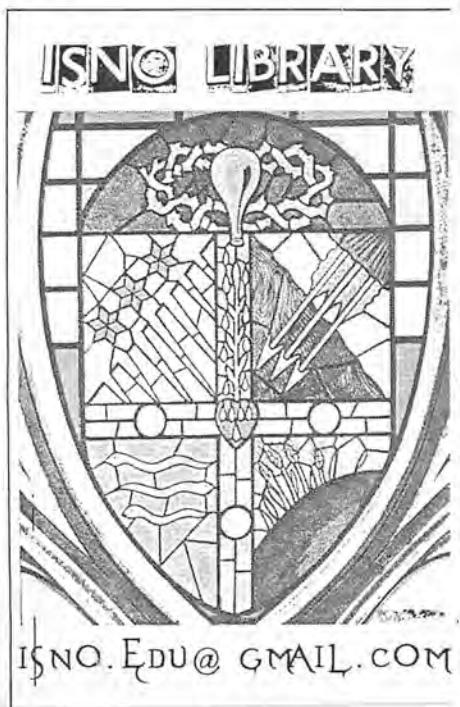
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Flare Star

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(Former Scientific advisor, United States Department of Energy)

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PART ONE

THE DEEP FREEZE

The Frigid Earth

THE GLACIAL THEORY

Primitive man made his appearance in the Quaternary period and, for that reason, the Quaternary is also sometimes referred to as the *Anthropozoic*—the *Age of Man*. The beginning of the Quaternary, that is the Pleistocene epoch, however, also witnessed the onset of the last ice age, a term derived from *die Eiszeit* that was coined around 1836 by Carl Schimper.

"Glaciers grew and descended deep below the [present]snowline and extended far to the south. They crossed the seas, engulfed both hills and plains, destroying all life in their slow, cold progress. They lowered the heights, deepened the valleys, crushed the obstacles which stood in their path, and dragged along the shattered fragments of rocks, and heaped them up in moraines."¹

Usually reported to have been first proposed by Louis Agassiz in 1837, the theory of ice ages was not born as the full-fledged child of any one parent. It actually went through an evolutionary process. It was started in 1818 by Jean Pierre Perraudin who, by studying striations on bedrock, had come to the conclusion that glaciers had once filled the entire Val de Bagnes in the Swiss Alps. Ignatz Venetz was so impressed by Perraudin's ideas that he decided to investigate the glaciers of the Swiss Alps for himself and, in 1829, when he had amassed enough information, he presented his conclusions to the annual meeting of the Swiss Society of Natural Sciences. Venetz had gone one step further than Perraudin in claiming that Alpine glaciers had once extended over the Jura mountains and also northward into the European plain. In 1832, Reinhard Bernhardi also published a paper in which he extended the surge of the ice from polar regions to as far as southern Germany. In 1834, Jean de Charpentier, who had earlier dismissed Perraudin's claims, but who was later convinced by Venetz, gave a paper on the subject to the same Society that Venetz had given his.

No one accepted the conclusions of these early proponents as convincing, least of all Agassiz himself. It was only two years later, when he had spent a summer in de Charpentier's hometown, and had seen the evidence with his own eyes, that Agassiz embraced the glacial theory. And, as with his predecessors, he, too, was at first greeted with incredulity and a barrage of criticism. This was especially so because Agassiz had gone further than his predecessors in claiming that this advance of ice had affected the entire world, concerning which even de Charpentier was shocked.

Alexander von Humboldt, who was one of Europe's leading scientists and a mentor to Agassiz, counseled his protégé to abandon his cause. The Reverend William Buckland, first

¹ J. Augusta (with Z. Burian), *Prehistoric Animals* (London, 1967), p. 26.

professor of geology at Oxford University, who had his own Biblical axe to grind, and to whom Agassiz turned next for support, was at first undecided. Eventually, however, after Agassiz showed him further evidence of glaciation in northern England, Ireland, and Scotland, *and correctly predicted where terminal moraines would be found*, Buckland not only converted to the ice age theory, he also managed to convince Charles Lyell, the prominent British geologist who was himself the founder of uniformitarianism. Opposition, especially from Biblical-minded scientists, nevertheless continued despite acceptance from such American worthies as Edward Hitchcock and Timothy Conrad.

It was only with the publication of a paper by the Scottish geologist Thomas Jamieson in 1865, which purported to show that only glaciation could account for such phenomena as striated bedrock and erratic boulders, did the opposition finally weaken. As that other prominent Scottish geologist, Archibald Geikie, predicted: "Doubtless, the glacial theory will ere long come to be universally accepted...as it ought to have fully twenty years ago, when its first outlines were sketched by Agassiz."¹

The scientific world was sold on the theory of ice ages.

THE PLEISTOCENE ICE AGE

According to the ice age theory, starting at about 125,000 to 120,000 years ago,² but peaking only 18,000 years ago,³ the ice fields in North America, centered over Hudson Bay, but including Ellesmere Island and Baffin Island, extended as far south as Kansas City including New England, Illinois, Indiana, and Ohio, even scouring the hills around what is now New York City. In Europe, the glaciers have been theorized to have extended from Ireland to the Urals, moving as far south as the 52nd parallel in Germany, covering what is now Moscow, eastern Denmark, and Poland. A smaller ice shield covered France, Italy and Austria. "The Pyrenees were an ice-armored barrier between France and Spain."⁴ Further east, they covered the Taymyr Peninsula in northern Siberia and the mountain ranges of eastern Siberia including the Tien Shan range of central Asia. In the southern hemisphere, the build-up of ice centered mainly in Antarctica, but mountain glaciers stretched along the entire Andes down to Argentina, with the southern island of New Zealand and Tasmania also encased in ice. "Even the tropics felt the effects of the global chill," it has been claimed, with glaciers forming "on Mauna Kea and Mauna Loa in Hawaii and Mount Elgon in Uganda—mountains that are today ice-free."⁵ Close to 30% of Earth's land surface, compared to the present 10%, was covered by thick glaciers "that averaged a mile in thickness."⁶ It has been estimated that the

¹ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 89.

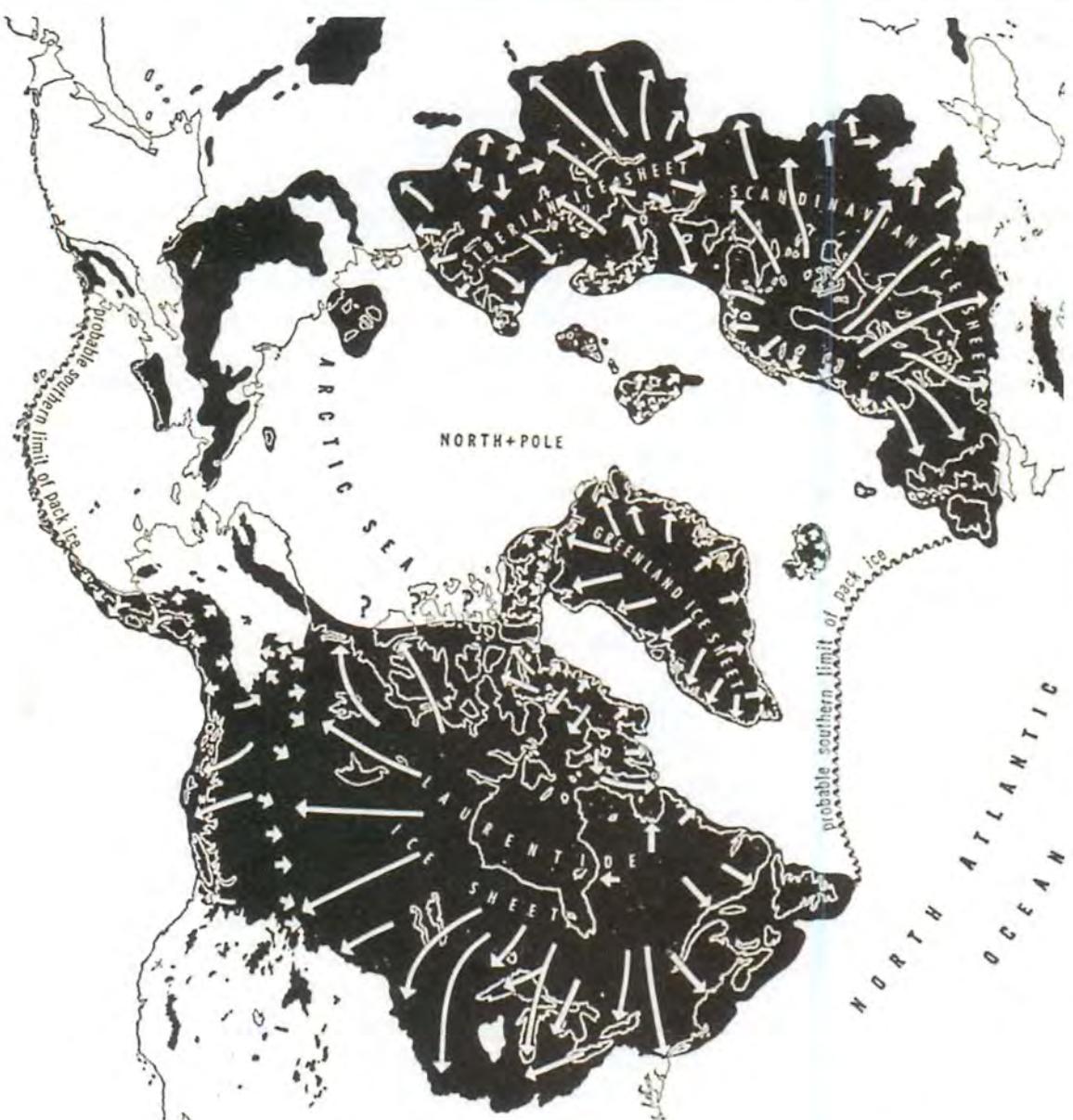
² *Ibid.*, pp. 20, 22. (NOTE: It has always amazed me that the same author can offer a date on one page and a different one for the same event on a consecutive page of the same work.)

³ *Ibid.*, p. 24.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*



Map of northern hemisphere showing the *conjectured* extent of the Pleistocene Ice Age and direction of glacier flow.

amount of oceanic water that went into the building of these glaciers lowered the oceans by 400 feet¹—although, to be sure, estimates vary from one source to another.

The world had frozen over.

¹ *Ibid.*, p. 28.

And it happened more than once. As Dolph Earl Hooker noted: “It is more or less customary for writers to refer to the Pleistocene period, or epoch, as ‘The Ice Age,’ thereby giving the impression that it was the only geological period in which glaciation occurred.” However, as he goes on, “other glaciations...varying in severity, are known to have occurred time and again at irregular intervals, separated by millions of years.”¹

Or, as Windsor Chorlton put it:

“The very term ‘ice age’ can be confusing, since it is generally used to refer to a period of sustained glaciation lasting a few tens of thousands of years. When scientists use the term, however, they frequently mean a period of global cooling that can last for millions of years and consists of a series of glacial advances and retreats, called glacials and interglacials. As a practical matter, it seems reasonable to call an event of such long duration an ‘ice era’ or an ‘ice epoch’ and to reserve the term ‘ice age’ for the relatively brief periods of most severe cooling.”²

Writing in 1958, Hooker spoke of eleven glacial episodes.³ In 1983, Chorlton vouched for only seven.⁴ It seems as if this depends on what *exactly* is understood by the term “ice age.” However, and to avoid confusion, we shall here use the term “ice age” to mean an “ice epoch” with its various advances and retreats of ice; the term “ice ages” to mean those ice epochs prior to the last such age which took place during the Pleistocene; and the term “Ice Age” to mean the Pleistocene ice epoch.

The Pleistocene Ice Age itself is also said to have been interrupted by interglacial periods in cycles that lasted up to 10,000 years, which alternations have been variously given as from ten⁵ to fifteen⁶ in number, with one proponent even vouching for thirty.⁷ Thus, for instance, it was announced in 1986 that Antarctica “has not been dominated by a thick ice sheet over the past 15 million years, as scientists generally believe.”⁸ Instead, it was discovered that “the ice sheet may have melted and reformed many times.”⁹

But, as Steven Robinson and others have pointed out, there seems to be no consensus on the actual number of glacial and interglacial periods or their duration.¹⁰ In fact, except for the belief in their occurrence, there seems to be no consensus on *anything* concerning ice ages, *least of all what caused them*. In 1970, David Ericson and Goesta Wollin, from the Lamont-

¹ D. E. Hooker, “Those Astounding Ice Ages (N. Y., 1958), p. 16.

² W. Chorlton, *op. cit.*, p. 18.

³ D. E. Hooker, *loc. cit.*

⁴ W. Chorlton, *op. cit.*, p. 20.

⁵ T. Palmer, “The Erratic Descent of Man,” *Chronology and Catastrophism Review* XII (1990), p. 19.

⁶ S. J. Robinson, “On the Disproportion Between Geological Time and Historical Time: Part Two—Of Earth, Fire and Water,” *Chronology and Catastrophism Review* (1993 Special Issue), p. 28.

⁷ J. P. Kennett, *Marine Geology* (New Jersey, 1982), p. 747.

⁸ I. Anderson, “A Glimpse of the Green Hills of Antarctica,” *New Scientist* (July 3, 1986), p. 22.

⁹ *Ibid.*

¹⁰ S. J. Robinson, *op. cit.*, pp. 28 ff., where various other sources are cited.

Doherty Geological Observatory, could estimate that there had been nearly one theory a year to account for the cause of ice ages for more than a century.¹

It would be impossible in this work to evaluate all that has been said concerning each and every ice age that is believed to have gripped our world. So that, while we cannot ignore ice ages in general, we shall mainly concentrate on the *Pleistocene* Ice Age.

THE INTERGLACIALS

Ice ages are believed to have been regularly punctuated by interglacials, that is periods within any one ice age during which the cold relented, temperatures rose, and the ice retreated somewhat. The number of interglacials are said to have varied from one ice age to another. How was this learned?

Immanuel Velikovsky had it stated that:

"Bones of Greenland reindeer have been found in southern New Jersey and southern France, and bones of Lapland reindeer in the Crimea. This was explained as due to the invasion of ice and the retreat of northern animals to the south. The hippopotamus was found in France and England and the lion in Alaska. To explain similar occurrences, an interglacial period was introduced into the scheme: the land was warmed up and the southern animals visited northern latitudes. And since the change from one fauna to another took place repeatedly, four glacial periods with three interglacial were generally counted, though the number of periods is not consistent with all lands or with all investigators."²

This is not the way it happened and Velikovsky should have known better. What transpired was this: As far back as the 1840s, in a cliff on the coast of East Anglia, the English geologist Joshua Trimmer came across two distinct layers of sediments, known as till, deposited by a glacier. What this suggested to him was that, as far as Britain was concerned, there had been at least two separate glaciations. This was confirmed in the 1860s when Archibald Geikie discovered a stratum containing the remains of plants sandwiched between two layers of till in Scotland. This not only established the past occurrence of two separate glaciations, it also indicated that the interim between them had been warm enough to allow plants to grow. As Chorlton summed up, "the argument was settled conclusively in the 1870s when the remains of a forest were found sandwiched between two sheets of till in the American Midwest."³

Since then it has been theorized that the duration of each glaciation could not have been more than "a few thousand years," with the interglacial periods "probably longer" in the region of "100,000 years or more."⁴ But, as E. J. Öpik had to admit:

¹ J. White, *Pole Shift* (N. Y., 1980), p. 12.

² I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 43.

³ W. Chorlton, *op. cit.*, p. 95.

⁴ E. J. Öpik, "The Ice Ages," in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), p. 871.

"From all we know now [i.e. in 1970], the Quaternary [which covers the Pleistocene Epoch] represented an exceptional period in the history of our globe. The repeated advance and retreat of glaciation is a phenomenon specifically restricted to this period; before that, for a time interval of about 200 million years, there was almost no permanent ice on earth's surface; even the poles were free and enjoyed a temperate or cold-temperate climate."¹

Öpik then goes on with: "The Tertiary, Cretaceous and earlier were warm epochs; most of the geological history falls within such warm periods, at least for the 500 million years since the Cambrian."² Even so, from time to time, this previous warm milieu *does* seem to have been interrupted by earlier ice ages. How many of them were there?

PREVIOUS ICE AGES

The ice age which preceded that of the Quaternary Period took place during the Permian Period, some 250 million years ago and calculated to have lasted about 25 million years.³ The traces it left are to be found chiefly in the southern hemisphere and mainly near the equator. This ice age was also interrupted by a succession of interglacial periods similar to those of the Pleistocene Epoch of the Quaternary Period.

Previous to that, a major ice age seems to have taken place during the Cambrian Period of the Paleozoic Era about 570 to 650 million years ago. Traces of this glaciation are to be found in both hemispheres with indications of alternating interglacial periods.

Before that, at least one other ice age ensued about which little is known.

There was also an even earlier posited Huronian ice age, a period of intense glaciation, calculated to have occurred about 2,150 million years ago.

As Öpik summed up: "Minor traces of ice are recorded between these major ice ages, but they are probably rightly dismissed as ordinary 'mountain glaciation'."⁴

What is of great interest is that the succession of these ice ages "was almost periodical, with a period of about 250 million years"⁵—and *this* we must not lose track of.

All in all, as Öpik pointed out, the duration of these ice ages was relatively short, "not more than 10 per cent of the total," when compared to the overall scheme.⁶ And, at the risk of belaboring a point already made, Öpik himself stresses the fact that: "The climate difference was so large that, during the normal warm periods, permanent ice was absent altogether

¹ *Ibid.*

² *Ibid.*

³ No references need be given for these dates and those immediately below since these vary from one authority to another and from work to work. What are supplied here are approximations which, in any case, will probably be refined further in the future. In view of the present thesis, even the millions of years cited might have to be eventually drastically shortened.

⁴ E. J. Öpik, *loc. cit.*

⁵ *Ibid.*

⁶ *Ibid.*

(except perhaps on some of the highest mountains), even the poles being free from ice during these periods."¹

GONDWANA

In his attempt to throw as many spokes as he could in the wheel concerning ice ages, Velikovsky stressed the signs of glaciation that are found in what today are the tropics. These discoveries date from the very inception of the theory as envisioned by Agassiz himself. As Velikovsky noted:

"In 1865, Agassiz went to equatorial Brazil, one of the hottest places in the world, where he found all the signs he ascribed to the action of ice...There were drift accumulations, and scratched rocks, and erratic boulders, and fluted valleys, and the smooth surface of tillite (rock formed of consolidated till), so there must have been ice to carry and polish, and the region must have gone through an ice period."²

Abundant vestiges of an ice age were eventually found also in Argentina, British Guiana, equatorial and southern Africa, Madagascar, India, most of Australia, the Falkland Islands, and, needless to say, Antarctica.³ Some of these glaciations left their signatures to within 20 and 10 degrees of the equator.

Velikovsky, of course, knew that this ice age, as indicated in our last section, had been dated to the Permian Period, but that did not keep him from pointing out what, to him, appeared as an incongruity. "Even if the phenomenon took place very long ago," he wrote, "an ice cover thousands of feet thick in the hottest places of the world is a challenging enigma."⁴

What was also at first considered contradictory were the unmistakable signs that, in Africa and Madagascar, the ice in some instances seems to have spread south from the equator, rather than north from the southern pole as logic would demand. And in India, the ice seems to have flowed north from the equator, rather than south from the northern pole. What could have caused these reversals of direction.

Velikovsky also quoted R. T. Chamberlain who had written:

"Some of these huge ice sheets advanced even into the tropics, where their deposits of glacier-borne debris, hundreds of feet in thickness, amaze the geologists who see them. No satisfactory explanation has yet been offered for the extent and location of these extraordinary glaciers...Glaciers, almost unbelievable because of their location and size, certainly did not form in deserts..."⁵

¹ *Ibid.*, p. 872.

² I. Velikovsky, *op. cit.*, p. 40.

³ W. Hamilton & D. Krinsley, "Upper Paleozoic Glacial Deposits," in P. Cloud, *op. cit.*, p. 850.

⁴ I. Velikovsky, *op. cit.*, p. 41.

⁵ R. T. Chamberlain, "The Origin and History of the Earth," in F. R. Moulton (Ed.), *The World and Man* (1937), p. 80, as quoted in *ibid.*, *loc. cit.*

<i>ERA</i>	<i>PERIOD</i>	<i>EPOCH</i>	<i>M/Yrs Ago</i>
CENOZOIC	Quaternary	Pleistocene	c. 1
	Tertiary	Pliocene	c. 13
		Miocene	c. 25
		Oligocene	c. 36
		Eocene	c. 58
MESOZOIC	Cretaceous	Upper	c. 110
		Lower	c. 135
	Jurassic	Upper	c. 165
		Middle Lower	c. 180
	Triassic	Upper	c. 200
		Middle Lower	c. 230
PALAEZOIC	Permian	Upper	c. 260
		Middle	c. 280
	Carboniferous	Lower	
		Pennsylvanian	c. 320
		Mississippian	c. 345
	Devonian	Upper	c. 365
		Middle	c. 390
		Lower	c. 405
	Silurian		c. 425
	Ordovician	Upper	c. 445
		Middle Lower	c. 500
	Cambrian	Upper	c. 530
		Middle Lower	c. 570

Simplified table of geologic succession with shaded cells indicating periods and epochs for which ice ages have been hypothesized.

Chamberlain, however, had written the above words in 1937. Unfortunately, meanwhile, while considering continental drift, Velikovsky discounted it because, at the time, no valid cause for the drifting of continents had yet been found. As he himself pointed out, when the British Association for the Advancement of Science met for its annual convention in August of 1950 to debate the case, the balance was not tipped in favor of drift.

"There were many defenders of the theory and as many opponents. The theory was then put to a vote. The result was an even division between 'yea' and 'nay.' The chairman was entitled to cast the deciding vote but abstained. Only through the fortuitous circumstance that the presiding officer was a conscientious—or undecided—person was the sanctification of continental drift averted."¹

But not for long. And, ironically, it was one of Velikovsky's own encouragers (although not necessarily a supporter) who, in the 1960s, finally came up with the mechanism responsible for continental drift, now better known as plate tectonics. But what did continental drift have to do with the apparent ambiguities of the Permian ice age?

As Warren Hamilton and David Krinsley first revealed, the answer lies in the congregation of the continents as they existed during the Permian. During this time, South America, Africa, India, Antarctica, and Australia were all bunched together in a single continental mass. This continental block—sometimes referred to as Gondwana, sometimes as Pangaea, although Pangaea is sometimes considered to have been the larger landmass resulting from the collision of Laurasia and Gondwana²—was at the time concentrated at the terrestrial south pole. The Permian ice did not therefore glaciate the tropics and equatorial areas. It glaciated the south polar regions. And the ice did not creep in a reversed direction. It crept from the south pole toward the northern latitudes as it should have done. It is only because this continental land mass split and drifted to the north that we now find the signs of this glacial epoch spread across the equator with the evidence of striation pointing in what appears to be the wrong direction.³

SNOWBALL EARTH

A more recently-postulated glacial event is said to have occurred during the Neoproterozoic, dated to approximately 600 million years before the present, just ahead of the appearance of recognizable animal life. As Paul Hoffman and Daniel Schrag tell us:

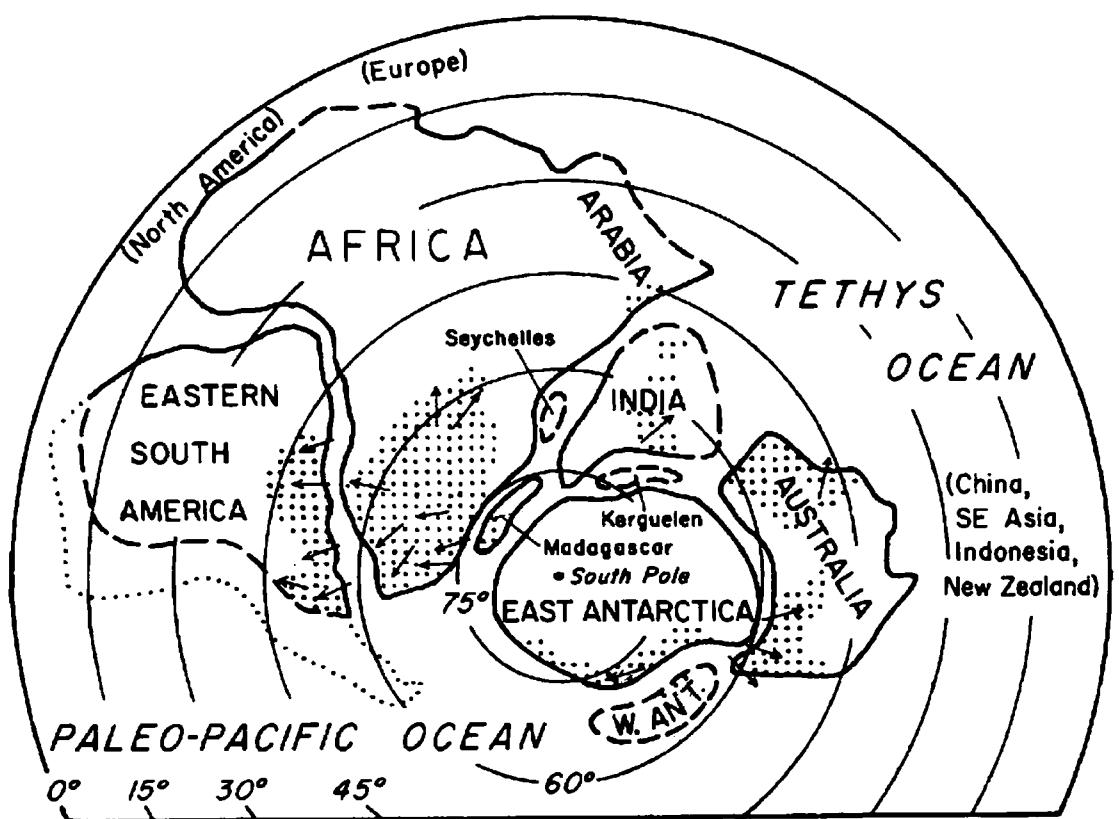
"Thick layers of ancient rock hold the only clues to the climate of the Neoproterozoic. For decades, many of those clues appeared rife with contradiction. The first paradox was the occurrence of glacial debris near sea level in the tropics."⁴

¹ I. Velikovsky, *op. cit.*, pp. 117-118.

² See, for instance, R. Miller, *Continents in Collision* (Alexandria, Virginia, 1983), p. 162.

³ W. Hamilton & D. Krinsley, *op. cit.*, pp. 850 ff.

⁴ P. E. Hoffman & D. P. Schrag, "Snowball Earth," *Scientific American* (January 2000), p. 69.



Gondwana.

The continental configuration prior to sea-floor spreading
which is claimed to have been positioned at Earth's south polar region
c. 250 million years ago.

Dotted areas indicate regions of known glacial till.

Dashed lines indicate contours of continental lands which have been deformed since the Permian.

Dotted line indicates extent of present South America.

Arrows indicate the direction of glacial flow.

It was in 1964 that Brian Harland, who hailed from the University of Cambridge, brought the world's attention to glacial deposits in the Neoproterozoic rocks of virtually every continent. This collective evidence comes from such presently widespread places as Australia, China, western North America, Namibia in south-western Africa, and the Arctic islands of Svalbard.¹

So what is new? Is this not similar evidence to what was discovered to account for the Permian glaciation? True—this new corroboration comes from much older geologic strata, but would not the answer to the puzzle be the same as that theorized for the Permian Period?

¹ *Ibid.*, p. 70.

Would not the answer lie in the congregation of the continental plates around the south pole? Not according to Harland, Hoffman, and Schrag.

In the early 1960s, Harland came to the conclusion that, during the Neoproterozoic, the continents had clustered near the equator rather than at the south pole as envisioned by Hamilton and Krinsley. Harland based his conjecture on the magnetic orientation of the mineral grains in the glacial detritus of the Neoproterozoic. These grains would have aligned themselves with Earth's magnetic field before the detritus hardened into rock. The magnetic dip of these grains was only slight relative to the horizontal, which indicates a formative position near the equator. Had these grains formed anywhere near the poles, their magnetic orientation would have been close to vertical.¹

In disagreement with Hamilton and Krinsley (whom they do not even mention), Hoffman and Schrag believe that the breakup of the continents from this single landmass occurred 770 million years ago.² Glaciation in Neoproterozoic strata on all continents which were already in separate blocks and strewn across the equator led them to the conclusion that *the entire Earth must have frozen over*—a theory now referred to as Snowball Earth, a term coined in 1992 by the geobiologist Joseph Kirschvink.³ Nor did it happen just once. “As improbable as it may sound,” wrote Hoffman and Schrag, “we see clear evidence that this striking climate reversal—the most extreme imaginable on this planet—happened as many as four times between 750 million and 580 million years ago.”⁴

According to Schrag, the ancient Earth had originally been kept warm by methane leaking slowly into the atmosphere when deposits within the seafloor somehow destabilized. This increased the levels of carbon dioxide. “The trouble with the planet’s dependence on methane,” Sarah Simpson explains, “is that the gas disappears quickly in an oxygen-rich atmosphere.” Thus an interruption in the methane leak would have left Earth “in dire need of greenhouse gases.” The result was that Earth’s climate “tumbled” into these deep freezes.⁵ As Simpson sought to explain: “The planet’s only solution to the deep freeze was to wait for volcanoes to release enough heat-trapping carbon dioxide to create a runaway greenhouse effect.” Thus a “brutal episode of warming ensued” which not only melted the ice but also ended up “baking the planet.”⁶

First presented in the journal *Science* in mid 1998, the theory garnered cautious support in the scientific community. Even so, Schrag himself had to acknowledge that his scenario strained credulity. “I’m not sure I totally buy this idea—it’s outrageous,” he admitted at the end of his presentation on the subject at a conference held in Edinburgh in June of 2001. “But it’s the only idea that explains the carbon isotope crash just before the glaciations.”⁷

¹ *Ibid.*

² *Ibid.*, p. 72. (Compare this with the collisions and separation of continental plates as believed in 1983—see R. Miller, *op. cit.*, pp. 162-163.)

³ *Ibid.*,

⁴ *Ibid.*, p. 68.

⁵ S. Simpson, “Triggering a Snowball,” *Scientific American* (September 2001), pp. 20, 21.

⁶ *Ibid.*, p. 22.

⁷ *Ibid.*, pp. 20, 22.

The theory raised some criticisms during the conference mentioned above, especially from Alan Kaufman who argued that every such cycle would have lasted for up to a million years which is contradicted by the calculated rate of sedimentation of the rocks in question. Thus as Simpson concluded: “The potential triggers of a snowball earth, it seems, may be as controversial as the details of the event itself.”¹ When, not long after, the theoretical physicist Gino Segrè presented the concept to his readers,² he was honest enough to admit that the theory was “not universally accepted,” that it “may not be entirely right,”³ and that “there are loose ends.”⁴ Yet, despite all that, he was confident enough to believe that the concept “holds together remarkably well”⁵ and that it was “moving toward acceptance.”⁶

As to how life could have survived such a complete world-wide freezing, Segrè informs us that:

“In a deep freeze, life could have continued on isolated underwater hydrothermal vents while it died on the surface...As the Earth thawed, surface life returned, generated in new and more varied forms, soon to multiply in astounding profusion. Perhaps the deep freeze was even a trigger of sorts for that spurt.”⁷

An addition to the theory was proposed by Philip Allen and Paul Hoffman who then hailed respectively from the Swiss Federal Institute of Technology and Harvard University. According to these two, when Earth was emerging out of its Snowball condition, it was buffeted by violent global storms caused by the immense temperature differences between the shrinking ice and the growing oceans around the equator. Evidence of these storms, including massive waves, was reported to have been discovered in ripples preserved in sedimentary rocks dated to 635 million years ago. This evidence was reported to have been discovered in the very same localities that Hoffman and Schrag had earlier discovered glaciation scars—Australia, Namibia, Brazil, Canada, and Svalbard in the Arctic Ocean. “The monster swells whipped up by persistent winds must have been 7 to 12 metres high.”⁸

In 2005, Snowball Earth was still short of confirmation.⁹ Worse still, the discovery of a photosynthetic community of algae in rocks from the period concerned has undermined the theory¹⁰ since it is inconceivable that such life, lowly as it might be considered by some, could have survived beneath the miles-thick glaciers which, under this scheme, would have covered Earth’s entire continents.

As of this writing, that is where the matter rests.

¹ *Ibid.*, p. 22.

² G. Segrè, *A Matter of Degrees* (N. Y., 2002), pp. 154 ff.

³ *Ibid.*, p. 159.

⁴ *Ibid.*, p. 158.

⁵ *Ibid.*

⁶ *Ibid.*, p. 160.

⁷ *Ibid.*, p. 159.

⁸ “A Howl of Wind Ended the Big Freeze,” *New Scientist* (January 15-21, 2005), p. 19.

⁹ I. W. D. Dalziel, “Earth Before Pangaea,” *Scientific American* (September 2005 Special Edition), p. 20.

¹⁰ “Temperature Reversals,” *New Scientist* (August 20, 2005), p. 18.

Chapter 2

The Milankovitch Theory

THE BIRTH OF THE MILANKOVITCH THEORY

Snowball earth aside, what *caused* the ice ages?

In 1842, the French mathematician Joseph Alphonse Adhémar concluded that Earth's climate is influenced by precession, that slow gyration of Earth's axis the imaginary tip of which describes a small circle against the background of the fixed stars. Besides affecting a slow successive change of pole stars, this motion also alters the length of the seasons since it changes the time of year during which Earth is nearest and/or farthest from the Sun. Thus, for instance, something like 11,000 years ago, the precessional cycle had lengthened the winters in the northern hemisphere while shortening those in the southern.

Adhémar thus suggested that "whichever hemisphere had a longer winter would experience an ice age, so that every 11,000 years glacial conditions would occur in either the Northern or Southern Hemisphere."¹

But as the German naturalist Alexander von Humboldt noted in 1852, the decrease in solar radiation received by a hemisphere while tilted away from the Sun is balanced by the same amount of increased radiation during the opposite season when the tilt is *toward* the Sun.² Thus, in the course of a single year, both hemispheres receive about the same amount of solar energy.

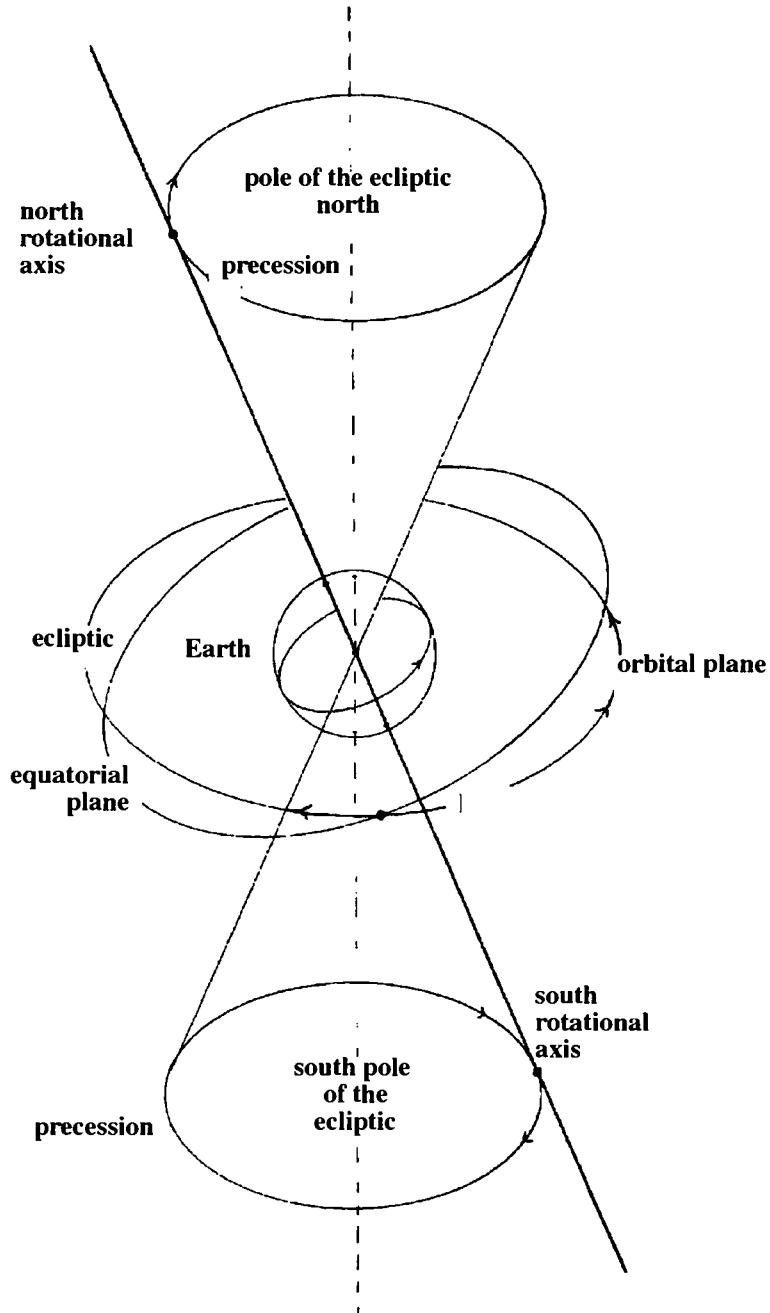
In 1864, James Croll, basing his ideas on the work of the French astronomer Urbain Jean Joseph Leverrier, came up with a new theory. Leverrier had by then discovered that Earth's orbital path around the Sun also changes over time. According to Leverrier's calculations, Earth's orbit varies over a period of some 100,000 years from the ellipse it now is to a nearly perfect circle and back again. Croll thus decided that the ice ages had been caused by these orbital changes. His reasoning was that the diminishing of sunlight in winter would encourage the accumulation of snow. This, in turn, would reinforce the seasonal cooling since further solar radiation would be reflected back by the aggregation of the snow. From this he determined that precession and the degree of orbital eccentricity were the major factors governing the amount of sunlight received by Earth in its winter months.³

In 1873, Alfred Wilks Drayson published the hypothesis that ice ages had been caused by a tilt of Earth's axis from the present 23.5° to one of about 35° and back again in a 30,000 year cycle. As he reasoned, winters would have been much colder and summers much hotter,

¹ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 102.

² *Ibid.*

³ *Ibid.*, p. 104.



The precession of Earth's axis.

with floods being caused during each transition from winter to summer.¹

In 1875, Croll himself published a book which, much like Drayson's, also took the effect of Earth's tilt into account, reasoning that an ice age would be most likely to occur when Earth's axial tilt was at its least inclined since the polar regions would then receive the smallest amount of solar radiation.² For this, Croll was elected a Fellow of the Royal Society in London, chosen as an honorary member of the New York Academy of Science, presented with an honorary doctoral degree by the University of St. Andrews, and granted funds to continue his research by the Geological Society of London.

But then disaster struck. Basing his calculations on the above mentioned astronomical parameters, Croll had determined that the last ice age would have peaked about 80,000 years ago. But continuing studies of the geological strata in Europe and North America soon made it clear that the glacial conditions of the last ice age had persisted until a much more recent time. "By the time of Croll's death in 1890, most geologists were beginning to believe that his theory must be wrong."³

The astronomical theory of ice ages was next picked up by Milutin Milankovitch who was born in 1879 in what was then Serbia, now Yugoslavia. It was in 1911 that he decided to develop a mathematical theory which he hoped would allow him to determine Earth's temperature at different latitudes as well as the climates of the other Solar System planets. A thorough survey of work done in this field by others before him soon brought him to Croll's endeavors as well as Ludwig Pilgrim's 1904 calculations of the precession of the equinoxes and the changes inherent in Earth's orbital eccentricity and the angle of its axial tilt. Pilgrim himself had even charted the relationship between Earth's orbital eccentricity and the ice ages. Milankovitch soon realized, however, that Croll had lacked the precise data necessary for his work and that Pilgrim's knowledge of climatology was likewise inadequate. Even so, Milankovitch could find no fault with Pilgrim's mathematics which he adopted for his own calculations.

It was not long before Milankovitch announced to the world that, much like Adhémar, Croll, and Pilgrim had suspected, the periodic advance and retreat of glacial ice could indeed be caused by changes in solar radiation due to a combination of precession, Earth's orbital eccentricity, and variations in Earth's angle of tilt. Contrary to Croll's belief that the dominant factor behind ice ages was the reduction of solar radiation at Earth's poles during the winter, Milankovitch concluded that the decisive factor lay in the reduction of heat in *temperate* latitudes during the *summer*. The mathematical curves he drew, showing how summer heat in the middle latitudes had varied during the past 600,000 years, impressed the German climatologist Wladimir Köppen who was struck by the correspondence between these curves and the sequence of European glaciations that had been established by Eduard Brückner and Albrecht Penck.

¹ A. W. Drayson, *On the Cause, Date and Duration of the Last Glacial Epoch of Geology, and the Probable Antiquity of Man* (London, 1873).

² J. Croll, *Climate and Time in Their Geological Relations: A Theory of Secular Changes of the Earth's Climate* (London, 1875).

³ W. Chorlton, *op. cit.*, p. 105.

As his work progressed, Milankovitch was finally able to maintain the possibility of determining the actual amount of solar radiation that had reached Earth at any time in the past. In 1930, he was even able to demonstrate that the radiation curves he had calculated for the higher latitudes are dominated by the 41,000-year cycle inherent in Earth's axial tilt variation, while tropical latitudes seemed to be more heavily influenced by the 22,000-year precessional cycle.

It is this theory, named after its proponent, but sometimes merely referred to as *the astronomical theory*, that the scientific world was most readily content to accept even though, as we shall soon see, it is the one theory that has been the most criticized. Thus, in 1953, for example, the German geologist Ingo Schaefer presented the results of his extensive analyses of Alpine river terraces. These terraces had been examined earlier by Penck and Brückner who had concluded that they had been laid down during an ice age. Schaefer, however, had found the fossils of warm-water mollusks in these same gravel layers, thus destroying Penck and Brückner's hypothesis which had been one of the underpinnings of Milankovitch's theory.¹

There was then the advent of radiocarbon dating. This enabled geologists to determine the precise age of Pleistocene fossils which led to the conclusion that the greatest advance of the Pleistocene ice sheet occurred at about 18,000 years ago and retreated about 10,000 years ago. This contradicted Milankovitch's calculations which had indicated that "the most recent minimum in solar radiation [had] occurred 25,000 years ago."²

"Many scientists wondered why, if this were the case, the ice sheet had not reached its farthest extent until 7,000 years later. Milankovitch himself had anticipated such discrepancies, explaining that it would take a massive ice sheet some 5,000 years to react to alterations in the earth's radiation budget; an additional 2,000 years seemed to be a reasonable margin of error. But a new problem emerged when scientists studying the geology of Illinois found a layer of peat that they dated as 25,000 years old. It had been formed by the slow decay of vegetation that could have grown only during a time of relative warmth. Researchers soon found similar deposits of the same age in other parts of North America and in Europe as well, strongly suggesting that the Northern hemisphere could not have been as cool then as Milankovitch said it was."³

And, the more geologists delved into the Milankovitch theory, the more they found it wanting:

"In the 1960s post-glacial logs and Roman-era bricks were identified in European gravel beds that Penck and Brückner had claimed were at least 20,000 years old. Most embarrassing of all, in an undisturbed layer of gravel that was said to date from the Ice Age, a Czech researcher uncovered a rusted bicycle part."⁴

¹ *Ibid.*, p. 119.

² *Ibid.*, p. 120.

³ *Ibid.*

⁴ *Ibid.*

Eventually, the very *nature* of the theory itself came under attack. Writing in *The Irish Astronomical Journal* in 1952, E. J. Öpik rendered his verdict of the Milankovitch theory as being “unfortunately unsound” since “it amounts to making small causes responsible for consequences, large out of any proportion to the causes.”¹ And, with the theory’s untrustworthiness, the chronology of the Quaternary glaciation also came under attack. “In brief,” wrote Öpik, “the ‘astronomical’ chronology of the ice ages must be stamped as illusory and rejected *en bloc...*”² He then continued with:

“Here it will suffice to mention one eloquent fact. The only definite dating of a glacial period [up to 1952] is that of the Mankato (Wisconsin) forest, which was overcome by an *advancing* glacier of the last glaciation; the radiocarbon method...indicates that this happened 11,000 years ago; yet the ‘astronomical’ theory assigns to that date a warm period, whereas the glaciation, according to the theory, should have happened much earlier. Thus, in the first test, the ‘astronomical’ theory fails completely.”³

None of these obstacles swayed Milankovitch who continued to believe in the correctness of his theory up until his death in 1958.

So did his defenders.⁴

THE DISTRESSED LIFE OF THE MILANKOVITCH THEORY

When it comes to the predicted sequence of ice ages, the Milankovitch theory remained at variance with geological evidence.⁵ As Nigel Calder phrased it: “All along, [the theory] had the supreme attraction of an undeniable cause in search of an effect.”⁶ But then came the team of James Hays, John Imbrie, and Nicholas Shackleton. As they reported in 1976, these three individuals tested the Milankovitch theory through the analysis of deep ocean cores drilled out of the seabed about a thousand kilometers northeast of Kerguelen Island in the southern Indian Ocean.⁷ While thousands of such cores were available to them, Hays and company could not even find one that would have been adequate for their purposes. They thus ended up by constructing a composite from two cores, each of which came from collections at different universities, “neither of which,” as Lynn Rose was later to report, “was adequate in itself.”⁸ One of them was even damaged, with the Holocene section miss-

¹ E. J. Öpik, “The Ice Ages,” in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), p. 869.

² *Ibid.*, p. 870.

³ *Ibid.*

⁴ See here, for instance, C. Emiliani, “Ancient temperatures,” originally published in *Scientific American* in 1958, subsequently republished in P. Cloud (Ed.), *op. cit.*, p. 896.

⁵ W. S. Broecker, “Absolute Dating and the Astronomical Theory of Glaciation,” *Science* (January 21, 1966), p. 299.

⁶ N. Calder, “The Cause of Ice Ages,” *New Scientist* (December 1976), p. 576.

⁷ J. D. Hays, *et al.*, “Variations in the Earth’s Orbit: Pacemaker of the Ice Age,” *Science* (December 10, 1976), pp. 1121-1132.

⁸ L. E. Rose, “The Milankovitch Theory of the Ice Ages,” *KRONOS* XII:2 (Spring 1987), p. 63.

ing, and another section having been mechanically stretched during the drilling process,¹ thus affecting the length of the chronological sequence. The other core, meanwhile, could not be used on its own because it did not reach as deep.² As Rose was later to conclude: "It is clear that they were scraping the bottom of the barrel."³

The choice fell on these two separate specimens because they were "centrally located between Africa, Australia, and Antarctica, and therefore little influenced by variations of erosional detritus from these continents."⁴ As Hays and company admitted, no other cores known to them contained the "attributes" they were looking for.⁵ But, as Rose explains, "the main limitation on core selection is that most cores feature low accumulation rates, and do not allow for sufficiently detailed resolution of climatic events."⁶ Even so, when placed end to end, the two cores selected by Hays and his team were said to cover nearly half a million years of bottom sedimentation which could permit the detection of long-term trends in climate through the foraminifera and the remains of various other life forms they contained.

Did the climatic sequence obtained from this composite core match that predicted by the Milankovitch theory? Well, yes, as Hays and company concluded, their analysis *did* show "that changes in the earth's orbital geometry are the *fundamental* cause of the succession of Quaternary ice ages."⁷ But, as Rose explained, only by adjusting both the theoretical expectations and the factual findings "after which there [was] still a need for extensive statistical manipulation in order to generate a fit." In other words: "*ad hoc* reasoning, and self-fulfilling prophecy."⁸

"If there really were a good fit between astronomical retrocalculation on the one hand, and the historical record as suggested by the deep oceanic sediment cores on the other hand, it would already be there for all to see, perhaps with different sorts of time lags here and there, but with no statistical manipulation required."⁹

Nor was this only Rose's verdict. D. Evans and H. Freeland were of the same opinion when they criticized some of the procedures utilized by Hays and his team and finally concluded that "while these results may be tantalizing, they fall far short of confirming the Milankovitch hypothesis; there *may* be an astronomical effect, but it is evidently small...At present, however, the data do not support the conclusion of cause and effect relationships."¹⁰ Hays and company, of course, replied, but, as Rose noted, "only with some strenuous back-

¹ J. D. Hays, *et al.*, *op. cit.*, p. 1122.

² *Ibid.*, p. 1124.

³ L. E. Rose, *op. cit.*, p. 65.

⁴ J. D. Hays, *et al.*, *op. cit.*, p. 1122.

⁵ *Ibid.*

⁶ L. E. Rose, *loc. cit.*

⁷ J. D. Hays, *et al.*, *op. cit.*, p. 1131 (emphasis added).

⁸ L. E. Rose, *loc. cit.*

⁹ *Ibid.*

¹⁰ D. Evans & H. Freeland, "Variations in Earth's Orbit: Pacemaker of the Ice Ages?" *Science* (November 4, 1977), p. 529 (emphasis added).

pedaling" since it was "apparent that Evans and Freeland took much of the wind from their sails..."¹

Moreover:

"A major puzzle for the Milankovitch theory is the apparent fact that the onset, the peaks, and the terminations of ice ages have been roughly simultaneous in both hemispheres. Obliquity (aside from the six-month lag) would be the same for both hemispheres, but the other factors that the Milankovitch theory relies upon—the orbital eccentricity, the precession, and the advancement of perihelion—all suggest that there should be long-term *differences* between the two hemispheres. How, then, can the status of the two hemispheres remain virtually the same?"²

Once again, this was not just Rose's contention. Walter Broecker called this very problem "a fly in the insolation ointment,"³ while J. H. Mercer, likewise, called it "a Fly in the Ointment of the Milankovitch Theory."⁴

THE DEATH OF THE MILANKOVITCH THEORY

The major problem with the Milankovitch theory amounted to this: Would the slight variation in solar radiation caused by the combined astronomical deviations have been enough to freeze Earth? As *New Scientist* reported, "even ardent supporters of the model have been embarrassed by the way some of these [ice age] rhythms seem to be too strong to be explained by the relatively modest astronomical effect alone."⁵

A special conference on "Milankovitch and Climate: Understanding the Response to Orbital Forcing" was held at Columbia University's Lamont-Doherty Geological Observatory from November 30 to December 4 in 1982. The proceedings were published two years later under the slightly different title of *Milankovitch and Climate: Understanding the Response to Astronomical Forcing*. As Rose reported some years later, efforts continued to improve the astronomical retrocalculations as well as to improve the geological record which were "becoming almost frantic."⁶ More deep ocean cores and other evidence were analyzed but there was "still no direct fit with retrocalculated astronomy," with "various guesses" still "being modified in an effort to make the geology fit the theory."⁷ And, "since the expected sort of

¹ L. E. Rose, *op. cit.*, p. 66.

² *Ibid.*, p. 67.

³ W. S. Broecker, "The Cause of Glacial to Interglacial Climatic Change," *Évolution des Atmosphères Planétaires et Climatologie de la Terre* (Toulouse, 1979), p. 175.

⁴ J. H. Mercer, "Simultaneous Climatic Change in Both Hemispheres and Similar Bipolar Interglacial Warming: Evidence and Implications," in J. E. Hansen & T. Takahashi (Eds.), *Climate Processes and Climate Sensitivity* (Washington, 1984), pp. 307-308.

⁵ "Monitor," *New Scientist* (May 28, 1981), p. 559.

⁶ L. E. Rose, *op. cit.*, pp. 67-68.

⁷ *Ibid.*, p. 68.

fit” was “still missing, much effort” went “into statistics, in order to prove that there might really be a fit after all.”¹

Even Broecker who, despite his criticism of Hays and company, had counted himself as a long-time convert to the Milankovitch theory,² had to refer to the simultaneity of the Ice Age terminations in both hemispheres as a “major puzzle” which caused him “to hesitate” about accepting the *totality* of the theory.³ As he himself stated: “I have no solution to this mystery.”⁴

Further doubts were raised by J. Oerlemans⁵ and the team of N. Pisias and M. Leinen.⁶ And, as Rose rightly concluded: “The overall impression that one gets from *Milankovitch and Climate* is that while there has been a flurry of uniformitarian activity within the context of the Milankovitch theory, the long-sought fit between astronomical retrocalculation and Pleistocene chronology [remained] as elusive as ever.”⁷

But not everyone agreed, as notice Nigel Calder who had it stated that: “The astronomical theory has emerged from among a host of rival theories as the most plausible explanation for the repeated advance and withdrawal of the ice sheets.”⁸ As John Gribbin reported, however, “the theory gets a chilly reception from astronomer Fred Hoyle” who had it stated that: “If I were to assert that a glacial condition could be induced in a room liberally supplied during winter with charged high-storage heaters simply by taking an ice cube into the room, the proposition would be no more likely than the [astronomical] theory.”⁹

And although in 1982 Peter Warlow found the courage to state that the Milankovitch theory was “back in vogue,”¹⁰ the consensus of opinion a year later was that “most of the world’s scientists [had] discarded the astronomical theory” altogether.¹¹

But that was in 1983.

THE RESURRECTION OF THE MILANKOVITCH THEORY

As with the ancient god of mankind, it did not take long for the theory to be resurrected. Even so, when Leroy Ellenberger reported in 1985 that the Milankovitch theory “has been widely accepted since the mid-1970’s,”¹² he was not relaying the *entire* truth. Besides, as Ellenberger himself had to admit, “despite promising explanations,” the way home was not

¹ *Ibid.*

² W. S. Broecker, “Terminations,” in A. Berger, *et al.*, *Milankovitch and Climate: Understanding the Response to Astronomical Forcing* (Dordrecht, 1984), p. 687.

³ *Ibid.*, p. 688.

⁴ *Ibid.*, p. 697.

⁵ J. Oerlemans, “On the Origin of the Ice Ages,” in A. Berger, *op. cit.*, p. 607.

⁶ N. G. Pisias & M. Leinen, “Milankovitch Forcing of the Oceanic System: Evidence from the Northwest Pacific,” in *ibid.*, pp. 307-308.

⁷ L. E. Rose, *op. cit.*, p. 69.

⁸ J. Gribbin, “Coming Soon: Another Ice Age—Scientists Tell Why,” *Science Digest* (December 1982), p. 73.

⁹ *Ibid.* (bracketed insertion as supplied).

¹⁰ P. Warlow, *The Reversing Earth* (London, 1982), p. 158.

¹¹ W. Chorlton, *op. cit.*, p. 121.

¹² C. L. Ellenberger, “Still Facing Many Problems,” Part II, *KRONOS* X:3 (Summer 1985), p. 2.

yet free of obstacles. As he noted, how the calculated 0.1% of variation in Earth's orbital eccentricity could have such a strong effect on climate remained "a puzzle."¹ Which brings us back to the introduction of Hoyle's ice cube into an adequately heated room. Or, as Bernard Newgrosh phrased it:

"It is indeed a puzzle why a 0.1% variation in Earth's orbital eccentricity should be thought to give rise to such large effects as ice ages. The only conclusion I can draw is that the scientists are too stubborn to look for an alternative causative mechanism."²

Even so, interest in the Milankovitch theory did go through a revival. What is worse, the general public was still being fed the myth that the Milankovitch cycles "control the amount of sunlight received by the two hemispheres in winter and summer" and that [m]uch of this theory is supported by deep-sea sediments."³ Not only that, a note of gloom and doom was being sounded concerning the return of an ice age as predicted by the Milankovitch theory. Note, for instance, Samuel Matthews who, in 1987, was deceived into asking:

"Under the inexorable Milankovitch cycles of earth's solar orbit, will the great continental ice sheets again begin growing? A hundred, a thousand years hence, will the ice have returned?"⁴

THE DEVILS HOLE CONTROVERSY

Newer discoveries were on the way and, as Robert Kunzig proclaimed in 1989: "The theory that ice ages are controlled by fluctuations in Earth's orbit" took "a dive in the Nevada desert."⁵ What happened? Harking back to Hays and Imbrie's deep-sea sedimentary evidence, it had been calculated that the last set of glaciers began to melt about 14,000 years ago; the next to last glacial retreat was placed at about 128,000 years ago. Despite criticism by other geologists, Imbrie was so sure of what the sedimentary evidence had to say that he went out on a limb by stating that if that latter date ever turns out to be wrong, "then a good part of the Milankovitch theory fails."⁶ It took Isaac Winograd to prove that that date *was* wrong. Winograd's reasoning was this:

The glaciers are believed to have covered something like eleven million square miles of land with a miles-thick sheet. With all the water it took to build this massive ice sheet removed from the ocean, sea level would have been about 350 feet lower than at present. The ice did not reach as far as Nevada's Great Basin; it did not reach Devils Hole, an oasis in the Mojave Desert some 40 miles east of Death Valley. And yet, it was here, at Devils Hole that

¹ *Ibid.*

² B. Newgrosh, "'Still Facing Many Problems'...Indeed," *KRONOS* XI:2 (Winter 1986), p. 90.

³ S. W. Matthews, "Ice on the World," *National Geographic* (January 1987), p. 88.

⁴ *Ibid.*, p. 103.

⁵ R. Kunzig, "Ice Cycles," *Discover* (May 1989), p. 74.

⁶ *Ibid.*, p. 76.

Winograd, together with his colleagues Barney Szabo, Alan Riggs, and Tyler Coplen, came upon the evidence with which they aimed to topple the Milankovitch theory.

Devils Hole is a weird place. It is an opening in a 10-mile-long fault along which Earth's crust is slowly being torn apart. Thirty to forty feet wide at the surface, the opening narrows to about 10 feet at a depth of 50 feet or so, at which point it meets the water table. The pool itself is something like 300 feet deep. It is this pool at the bottom, or, more precisely, the calcite deposits in its walls, that attracted Winograd and his team. Calcite is laid by groundwater, and this would have occurred when the water level was lower and the hole dry. Moreover, calcite is believed to contain a good record of the advance and retreat of ice sheets because its chemical composition depends on climatic conditions.

Diving into the hole, Riggs chiseled out a six-inch-thick chunk of calcite from 70 feet below the surface. Winograd and Coplen then analyzed the rock, "millimeter by millimeter, starting at the surface of the vein and going backwards in time."¹ What were they looking for? Well, it's a complicated issue, but the bottom line is that they were looking for the oxygen 18 content in the calcite chunk. Why? Because, during an ice age, the oceans become depleted in oxygen 16, and thus enriched in oxygen 18 due to the fact that the proportion of these two oxygen types, while ordinarily maintained, disrupts itself when so much of that water locks itself up in continental ice sheets. In other words, the "lighter" water is kept from running back into the ocean through rivers.

One hundred and ten samples later, Winograd and company plotted their measurements. They then matched the major peaks and troughs in the curve they obtained with the peaks and troughs that had been obtained in deep-sea sediments and ice cores from Greenland and Antarctica. And the result? All three curves seemed to record the same glacial advances and retreats. *But not during the same time periods.* As Kunzig reported:

"The ice-age chronology from Devils Hole was shifted well back in time compared with the chronology from the deep-sea sediments. According to the sediments, for example, [the next to last glacial retreat] happened about 128,000 years ago; according to the Devils Hole calcite, it happened at least 147,000 years ago."²

"What difference does 19,000 years make?" asked Kunzig. And he answered:

"To the straightforward version of the Milankovitch theory, it makes a big difference. According to orbital calculations, 128,000 years ago the high latitudes of the Northern Hemisphere were getting an unusually large amount of sunlight during the summer—just what was needed, in Imbrie's model, to melt the glaciers. But 147,000 years ago the situation was different. The amount of sunlight falling on the glaciers then was at best average."³

¹ *Ibid.*, p. 77.

² *Ibid.*

³ *Ibid.*

Imbrie was not happy. But he was not deterred either. As he was reported to have said, he was “ninety-five percent sure” that Winograd, *et al.*, would end up “learning something new about the groundwater system of Nevada.”¹ Fine—he had his own axe to grind. But did other glaciologists jump on Winograd’s band-wagon?—Hardly.

As opponents of Winograd and his team pointed out:

“The 128,000 year date for the next-to-last ice melt is supported by several independent lines of evidence, ranging from coral reefs in Barbados—which show that sea level was very high around 125,000 years ago—to limestone formations in Antarctic lakes. The Devils Hole measurements are a little lonely by comparison.”²

Or, as Chris Hendy put it:

“Before you can throw the last twenty years out the window, you have to find similar situations. You need several springs like Devils Hole to be sure you’re not looking at unusual circumstances.”³

Keep in mind, however, that Hendy, too, had his own axe to grind seeing that it was he who had dated the Antarctic limestone which was now being used to contest the evidence from Devils Hole.

Meanwhile, there were other authorities who rallied to Winograd’s side. Among them was our old friend Broecker who was forced to admit that “the new Devils Hole chronology is more firm than any other available isotopic age in this range.”⁴ As he continued:

“Nowhere else has such a high degree of concordance between...ages been achieved. No other archive is better preserved. No other record has so many stratigraphically ordered radiometric ages.”⁵

His conclusion was that “climate modelers should start preparing themselves for a world without Milankovitch.”⁶ So, similarly, with the team of K. R. Ludwig who also concluded that the Devils Hole evidence remains “a challenge to the Milankovitch hypothesis.”⁷ And what, then, of the touted correlation between deep-sea sediments, Greenland ice cores, and the Milankovitch theory? Well that depends on which authority you listen to. As can be seen from the following quote, Tjeerd Van Andel was of an entirely different opinion:

“The study of sediment cores from the deep Atlantic and ice cores from Greenland does not confirm the gradual transition from glacial to interglacial and back again that

¹ *Ibid.*

² *Ibid.*, p. 78.

³ *Ibid.*

⁴ W. S. Broecker, “Upset for Milankovitch Theory,” *Nature* (October 29, 1992), p. 780.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ K. R. Ludwig, *et al.*, “Last Interglacial in Devils Hole,” *Nature* (April 15, 1993), p. 596.

is implied by the astronomical cycles [of the Milankovitch theory] and partly documented by the oxygen isotope record. Instead as on the land, the response of the North Atlantic Ocean atmosphere system increasingly looks like a series of abrupt flip-flops from one stage to another.”¹

SUMMING UP

Much more can be said, as it *has* been said, for and against the Milankovitch theory, but at its heart lie the following problems:

- (1) There seems to be solid evidence that ice ages ended abruptly “with temperatures rising to their warmest levels even more rapidly than the ice sheets melted.” During the glacial periods “the temperature has also fluctuated rapidly and dramatically.” The problem here is that the orbital cycles inherent in the Milankovitch theory do not provide “for such bursts of climatic change.”²
- (2) It has never been understood how the cooling of the northern hemisphere could account for the accompanying glaciation of the southern one. “Glaciers in the Andes and Antarctica have advanced at roughly the same times as those in the north, that is, at times when the orbital calculations [inherent in the Milankovitch theory] indicate that the Southern Hemisphere should have been getting a lot of summer sunlight.”³
- (3) The extent to which the shape of Earth’s orbit fluctuates varies with a period of about 10,000 years. This seems to fit the cycle of recurring ice ages which have also been calculated to occur every 10,000 years. And it is this, more than anything else, which has made the Milankovitch theory so seductive. Unfortunately, as already noted, that variation in Earth’s orbit only changes the amount of sunlight that reaches the northern hemisphere “by less than half a percent.”⁴

“In contrast, the shorter tilt and wobble cycles change the amount of Northern Hemisphere summer sunlight by as much as 20 percent. The question researchers have asked ever since the Milankovitch theory came back into vogue is: Why should the weakest orbital cause have the strongest geologic effect?”⁵

- (4) But even the variation of Earth’s tilt is problematic in this respect. As Hoyle noted, “slight changes in the tilt of the Earth’s axis of spin give only negligible solar variations *at equatorial latitudes*; yet the last ice age produced the great glaciers on Mauna Loa and Mauna Kea in Hawaii, and Mount Elgon in Uganda. Obviously something drastic happened in the tropics for which the Milankovitch theory cannot account.”⁶

¹ T. H. Van Andel, *New Views of an Old Planet* (Cambridge, 1994), p. 97.

² R. Kunzig, *loc. cit.*

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ F. Hoyle, *Ice* (N. Y., 1981), p. 70 (emphasis added).

Despite his own criticisms of the Milankovitch theory, Rose did have a few good things to say about it back in 1984. "It is regrettable," he wrote, "that more recent defenders of the Milankovitch theory have abandoned much of the tentativeness and caution that were exhibited by Milankovitch himself."¹ Rose even warned catastrophists, of whom he is one himself, not to relinquish the theory altogether. "It is even more regrettable," he thus continued, "that catastrophists have hitherto shunned the theory, apparently on the grounds that it is somehow tainted because it has been used in defense of uniformitarianism."² As he continues:

"In its most general sense, the Milankovitch theory is concerned with the patterns of insolation during various orbital circumstances, and the effects that that insolation would have on climate, especially in terms of glaciation. When viewed in this way, the Milankovitch theory does not *have* to be uniformitarian at all."³

However, the Milankovitch theory, as formulated by Milankovitch, *is* uniformitarian, and this is a fact that Rose was not only aware of, but one he himself stressed. Milankovitch's approach was "to assume that the present orbit has been in place for an indefinitely long time, and that minor cyclical and secular changes of various sorts can be retrocalculated into the past."⁴ If we then remove these factors from the Milankovitch theory, it is no longer the Milankovitch theory, and all that Rose can claim is that the ice ages can be attributed to an astronomical cause. I agree. But no matter how much Rose may argue, that astronomical cause cannot be the one advocated by Milankovitch.

As of this writing, and despite the many objections brought against it, the Milankovitch theory still has its adherents. More than that, the theory is even now made to account for effects other than ice ages. Thus, Martin Claussen, together with his graduate student Claudia Kubatzki, have now used the Milankovitch model to account for hotter northern summers, stronger monsoons, and a greener Sahara Desert.⁵ But that is another story.

¹ L. E. Rose, *op. cit.*, p. 60.

² *Ibid.*

³ *Ibid.*, pp. 69-70 (emphasis as given).

⁴ *Ibid.*, p. 70.

⁵ R. Kunzig, "Exit from Eden," *Discover* (January 2000), pp. 89-90.

Chapter 3

Alternative Hypotheses

IN SEARCH OF A BETTER PROPOSAL

The Milankovitch theory has not been alone in its attempt to gain acceptability. Far from it. There have been, as there still are, many alternative hypotheses vying for fame. But, as A. P. Coleman wrote in 1926: "During many years of study of glaciations I have hoped to find a solution of the difficulties in several theories at different times but have always encountered some point where they failed."¹ Or, as John Bradley, Jr., put it: "Although many explanations have been offered, no universally acceptable hypothesis for the causes of glaciation has yet been pronounced."² And, as W. B. Wright announced in 1937: "It must be admitted that among the theories which have been brought forward to account for the phenomena of the Ice Ages, there is not a single one which meets the facts of the case in such a manner as to inspire confidence."³

Writing in 1958, Dolph Hooker commented:

"The criticism may be made that the above opinions are old and out of date; yet the fact is that every theory in existence today had been previously expounded and was studied by the above critics before their conclusions were reached. Many recent investigators have arrived at the same conclusions which have been cited."⁴

In his own work, Hooker enumerates various of these theories, but, as others before him, he reached the same conclusion: "Every one has been analyzed and thoroughly studied by leading scientists throughout the world; and every single one has been rejected as untenable."⁵

But that was in 1958. Is the situation any better at present?

A SIMPLE MATTER OF SEVERE WINTERS

In 1970, Hubert Lamb and Alastair Woodroffe, both British scientists, seemed to wonder what the ruckus about ice ages was all about. To them the answer seemed a simple matter. Becoming known as the Snowblitz Theory, their explanation was that "an ice age could be started by nothing more dramatic than a succession of harsh winters." The high latitudes of Europe would have suffered several years of severe winters which would have been followed

¹ A. P. Coleman, *Ice Ages: Recent and Ancient* (N. Y., 1926), as cited by D. E. Hooker, *Those Astounding Ice Ages* (N. Y., 1958), p. 21.

² J. H. Bradley, Jr., *The Earth and its History* (N. Y., 1928), as cited by D. E. Hooker, *loc cit.*

³ W. B. Wright, *The Quaternary Ice Age* (London, 1937), p. 463.

⁴ D. E. Hooker, *loc. cit.*

⁵ *Ibid.*, p. 20.

by cool summers. The snow on hills and mountains would thus endure through the summers. The snow's increased reflectivity of solar rays would reduce temperatures, more snow would fall, and less would melt. Given a series of such harsh weather conditions, ice sheets would eventually develop.¹ *Quad erat demonstrandum.*

As Chorlton expressed it: "History suggests that the snowblitz theory is less than fool-proof."² True enough, the so-called Little Ice Age, which gripped the world in medieval times, did owe its cause to a series of drastically cold winters and summers. But, not only did this situation last a mere few hundred years, the ensuing frigidity fell drastically short of what could rightly be termed an ice age. North America and Eurasia came nowhere near being buried in miles-thick glaciers. Granted, one might argue that just because it did not go all the way during the Little Ice Age, it does not necessarily mean that a similar situation might not have prolonged itself and thus intensified into a proper ice age. But this, then, would have to have transpired more than once and, judging by what has been going on climatically since the last Ice Age, the burden of proof, despite the Little Ice Age, remained on Lamb and Woodroffe's shoulders.

ICE AS ITS OWN CAUSE

In 1964, Alex Wilson, a glaciologist from New Zealand, reverted to the theory that the ice ages were caused by the ice itself, but with a slight difference. As Windsor Chorlton expressed it: "Wilson's scenario was relatively simple,"³ and it amounted to the following.

Starting with the Antarctic ice sheet, Wilson explained how this grows thicker and thus heavier during thousands of years of snow accumulation. The immense pressure exerted on the bottom ice causes it to melt and the water thus formed acts as a lubricant for the entire sheet. The motion of the entire Antarctic sheet would then accelerate, and the ice would slip into the surrounding water. As it spread and broke up, the ice would reflect increasing amount of solar radiation back into space. This would cause a rapid cooling of Earth's southern hemisphere. Wind and marine currents would then convey this chill northward, which would radically alter the world's weather patterns. In its turn, this coldness would cause ice sheets to form in the northern hemisphere. Over thousands of years, North America and Eurasia would be buried under ice.⁴

The ice age would then have ended through a reversal of the above mechanism. "The massive outward surge of the colder ice" at the Antarctic would cool the base of the ice sheet, thus stopping the melt and depriving the sheet of its lubrication. The ice would stop surging into the sea, floating ice would be diminished, and thus less solar radiation would be reflected back to space. The southern hemisphere would warm up, currents would then warm the northern hemisphere, and the northern ice would begin to melt. The cycle would then repeat itself.⁵

¹ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 121.

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

All very neat, as Chorlton put it. "But the evidence in support of Wilson's theory," he went on, "is not wholly convincing." Antarctic surges of the sort Wilson had in mind, he argued, are not now apparent.¹

Well, not quite. That might have been true in 1983, but it is now known that such surges do take place in Antarctica, and through the very lubricating mechanism espoused by Wilson. These surges, however, are presently restricted to the Ronne and Ross ice shelves. The result of these surges, however, is contrary to what Wilson expected. What is actually transpiring is that these ice shelves are melting and the glaciers that feed them are retreating.² In the meantime, Earth's climate is not getting any colder. And if the Antarctic ice sheet does not at present act in the manner advocated by Wilson, what could have caused it to act according to his theory in the past?

COLD VERSUS HEAT

Back in 1883, the British physicist John Tyndall had already noted that those who were searching for the cause of ice ages "have overlooked the fact that the enormous extension of glaciers in bygone ages demonstrates, just as rigidly, the operation of heat as well as the action of cold."³ As he stressed, cold is not sufficient to produce glaciers.⁴

What Tyndall meant was spelled out clearly in 1952 by Donald Menzel. "I have always believed than an ice age is not, of necessity, a cold age," he told his listeners at a conference. "In fact, as others have noted," he went on, "an increase of solar radiation, rather than a decrease, may well bring about an ice age, because of the greater evaporation from the oceans produced by the stronger solar radiation."⁵

As Hooker had it plainly stated: "An analysis of all theories which have heretofore been advanced shows unmistakably that without exception every one is based upon the preconceived assumption that colder climate, *per se*, was the cause of ice ages."⁶ Thus, as Hooker ably reasoned, glaciologists are not really looking for the cause of ice ages, but, rather, for what caused Earth's climate to grow colder.⁷

Barbara Bell was of the same opinion when she pointed out that a decrease in solar radiation would account for less precipitation and thus "virtually impossible to build up any appreciable ice sheet on the land."⁸

¹ *Ibid.*, pp. 121, 122.

² See, for instance, R. A. Bindschadler & C. R. Bentley, "On Thin Ice?" *Scientific American* (December 2002), pp. 98 ff.

³ J. Tyndall, *Heat Considered as a Mode of Motion* (1883), p. 192.

⁴ *Ibid.*

⁵ D. H. Menzel, "The Causes of Ice Ages," read at the conference sponsored by the Rumford Committee of the American Academy of Arts and Sciences, 1952, as quoted by H. Shapley, *Climatic Change* (Cambridge, 1953), in turn quoted by D. E. Hooker, *op. cit.*, p. 31.

⁶ D. E. Hooker, *op. cit.*, p. 24 (emphasis as given).

⁷ *Ibid.*

⁸ B. Bell, "Solar Variation as an Explanation of Climate Change," in H. Shapley, *op. cit.*, as cited by D. E. Hooker, *op. cit.*, pp. 31-32.

Revived more recently by the prophet of doom John Hamaker, this same notion was again boosted in 1992 by Gifford Miller who came to Hamaker's support:

"People are taught in high school that when the world gets cold, an ice age begins. The geologic record is showing us this is not so. Just before the last climate crash, temperatures got a little warmer, as they are getting a little warmer today."¹

Anne de Vernal, from the University of Quebec in Montreal, then joined the club. "That glaciers are cold," she rightly pointed out, "does not mean they are *triggered* by cold."²

The problem with this mechanism is twofold. First, what would have induced the Sun to supply more heat than usual? Secondly, according to Tyndall, the heat required to evaporate the oceans in order to precipitate sufficient moisture in the form of ample snow to cause an ice age would raise a mass of iron five times greater than the mass of the ensuing ice to the melting point.³ Even though Tyndall erred in his calculation and exaggerated the effect,⁴ the oceans would still have had to heat up. It is not enough for Leroy Ellenberger to remind us that "the ice accumulating today in Greenland and elsewhere does not originate from water that has literally boiled."⁵ Today's ice, in Greenland and elsewhere, does not constitute an ice age. Even so, it remains difficult to see how Tyndall's tremendous evaporation could have turned into snow amid his postulated infernal heat. Upon condensing, this evaporation should instead have fallen as rain. This then becomes the dilemma: for an ice age to occur according to the above postulate, Earth would have had to fry which would have kept the ice from forming.

UPLIFT OF LAND

Back in 1958, Cesare Emiliani attempted to revive the theory of continental uplift as a solution to the occurrence of ice ages. Commencing with the end of the Cretaceous period, Emiliani appealed to the sinking of a large portion of the Pacific bottom and "similar foundering." According to him, this was accompanied with a simultaneous epoch of mountain building which created such chains as the Rockies, Andes, Alps, and Himalayas. This prolonged process resulted in "millions of square miles of previously immersed land" which now rose above a posited shallow sea. "Since dry land absorbs less solar radiation than water does," he reasoned, "the world climate became steadily colder." Some two million years ago, permanent ice caps developed in Antarctica and Greenland. These caps would have reflected the Sun's heat back into space.⁶ As he continues:

¹ G. Easterbrook, "Return of the Glaciers," *Newsweek* (November 23, 1992), p. 63.

² *Ibid.* (emphasis added).

³ J. Tyndall, *loc. cit.*

⁴ C. L. Ellenberger, "Still Facing Many Problems," Part II, *KRONOS* X:3 (Summer 1985), p. 3.

⁵ *Ibid.*

⁶ C. Emiliani, "Ancient Temperatures," in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), pp. 897, 898.

"Some 300,000 years ago the climate had become so cold that one of Milankovitch's cool-summer cycles could have extended the northern ice south to northeastern North America and Scandinavia—both regions of heavy snowfall. Back-radiation of solar energy was still further increased, and the first great wave of ice was under way."¹

And yet, Emiliani himself was quite critical of the Milankovitch theory. As he explained: "The main difficulty with the Milankovitch theory is that it fails to explain why the Ice Epoch developed only recently—within the last million years—after 200 million years during which the earth had no ice ages."² Through what logic can he then bolster his theory by appealing to "one of Milankovitch's cool-summer cycles"? And then, how would the raising of land-areas, which remain above sea level to this day, have resulted in a colder climate when the same land-areas, now covered with snow and ice, do not do so at present?

An analogous theory, the brainchild of William Ruddiman and Maureen Raymo, blamed the possible cause of ice ages on an uplift of the Tibetan Plateau. By thus altering wind direction, this would have accentuated climatic swings and altered rain patterns "in a way that caused carbon dioxide to wash out of the atmosphere faster than it once did." This would have diminished Earth's greenhouse effect which, in turn, would have led to global cooling.³ But, heavens! —Is the Tibetan Plateau, or the Himalayas of which it is composed, the only uplift of land known to have transpired through Earth's geologic ages? Granted—it is the highest on Earth, and could thus have served as a greater cause for atmospheric changes. But then it could only be held responsible for *one* ice age. What about the series of other ice ages? One may argue that *other* uplifts might have been the cause of *other* ice ages in the past. But then, since the Tibetan Plateau, and other uplifts, remain uplifted to this day, why are we not still within the grips of an ice age? After all, the changes in wind pattern and rainfall that these uplifts created are still with us to this day.

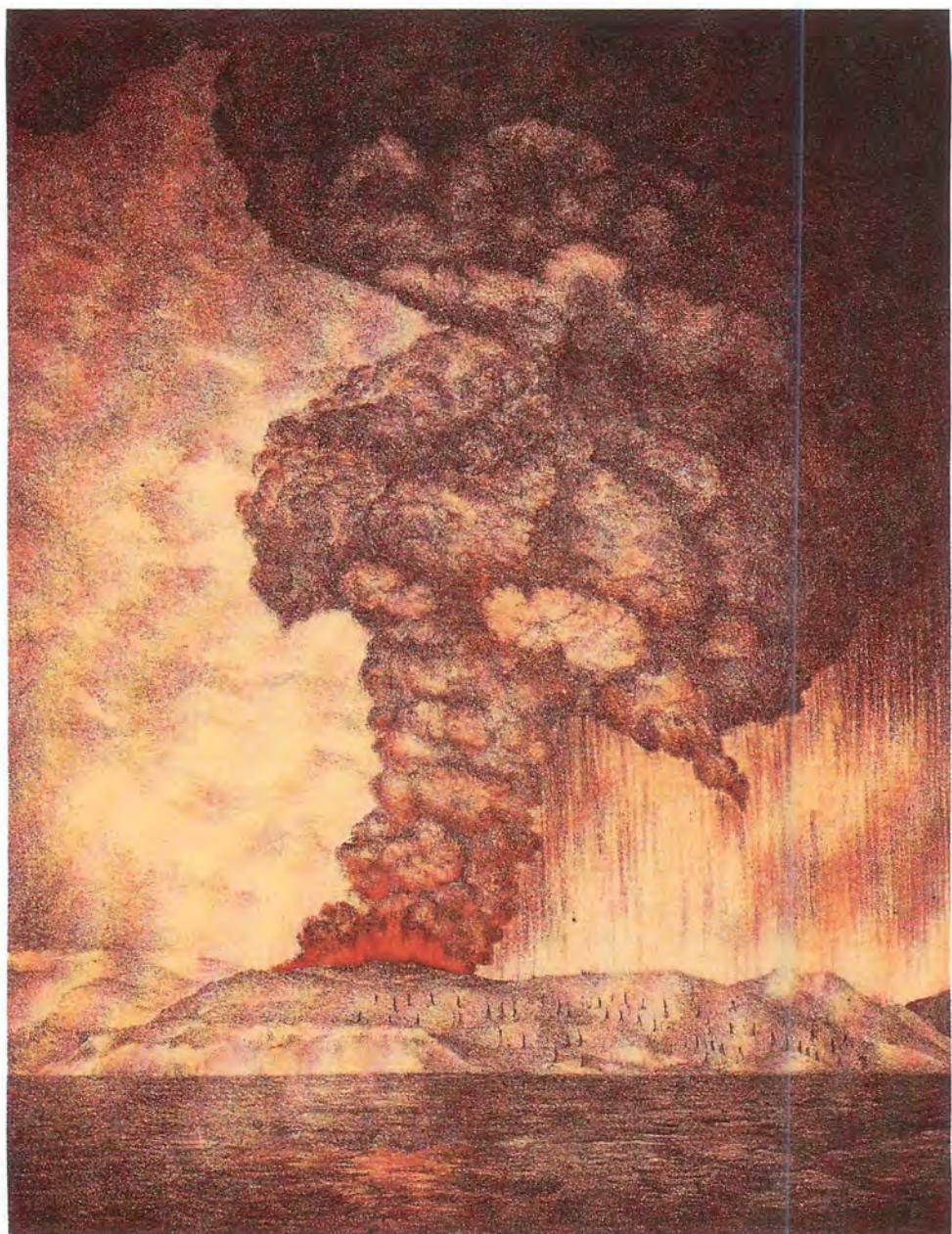
THE VOLCANIC THEORY

One theory that *regained* temporary prominence blamed ice ages outright on the action of volcanoes. While not exactly new, this theory received a boost from Harry Wexler in 1952. Basing his findings on the explosion of Krakatoa, in the East Indies, which occurred on August 27, 1883, Wexler argued that as much as twenty per cent of the sunlight received on Earth can be blocked by just such a series of volcanic eruptions occurring in a relatively short time. Krakatoa has been calculated to have thrown some 13 cubic miles of rock, dust, and ash into the air. Enormous clouds of ash rose up to 20 miles or more into the atmosphere, drifting across the oceans and continents, arriving over Europe three months after the explosion. The Sun's radiation, as recorded at the Montpellier Observatory in the south of France, dropped "from 30 per cent above normal to 20 per cent below normal." As Wexler proposed: "A long

¹ *Ibid.*, p. 898

² *Ibid.*, p. 897.

³ G. Easterbrook, *op. cit.*, pp. 62-63.



The eruption of Krakatoa.
(Illustration by the U. S. Geological Survey.)

series of volcanic explosions that built up the dust pall, making the winters stormy and cold and the summers cool, might nourish glaciers and bring on an ice age.”¹

Previous theorists, among them P. and F. Sarasin and W. J. Humphreys, could not find any evidence that such volcanic outpouring would have the predicted effect on weather. As Wexler himself admits: “The records of weather stations around the world failed to show any consistent or significant cooling of the globe after the Krakatoa explosion or other great volcanic eruptions.” He then blames this failure on the fact that there were not enough weather stations at the time for enough data to be gathered. Even at the time of his writing, in 1952, the number of weather stations remained insignificant with large areas of Earth, especially the oceans, devoid of such depots.²

Decades later, ocean cores from the North Pacific, said to contain evidence of glaciation, were also found to contain ash. This led to the revival of the volcanic theory, which blamed the succession of ice ages commencing some 2.6 million years ago on a series of volcanic eruptions. Earlier still, some 25 million years ago, another eruption, or series of eruptions, deposited a thick layer of pumice which was discovered in the sediment below the sea ice of Antarctica.³

And yet, Wexler himself throws a monkey in the wrench of his own supposition when he focuses on the major problem of the theory in that “the geological record shows no consistent connection between periods of volcanic activity and ice ages.” While geologists have sometimes found that glacial deposits *do* lie on top of volcanic ash, in most cases the signatures of ice ages fail to reveal any apparent evidence of volcanic activity. There are also many significant deposits of volcanic ash that are not burdened by the signatures of ice ages. As Wexler was forced to admit: “It would be foolish to argue that volcanic explosions are the sole cause of long-range climatic variations,” even though he still believed them to have been the *main* cause.⁴

One other problem that supporters of this theory seem to overlook concerns the *cause* behind such world-wide volcanic activity which, if made to account for ice ages, would have multiple volcanoes erupting much more frequently than at present for relatively short periods of time, and then lie dormant, when not extinct, for longer periods, only to re-activate themselves, time and again, in a concerted cyclic pattern through the ages.

POLE SHIFTS AND TILTS

1964 also saw the publication of a book by René Gallant⁵ which not only severely criticized the Milankovitch theory, but which also proposed a theory of ice ages which has been expounded on by various authorities through the years. As presented by Gallant, this theory discusses the possibility that ice ages owed their cause to the shifting of Earth’s axial pole by

¹ H. Wexler, “Volcanoes and World Climate,” *Scientific American* (April 1952).

² *Ibid.*

³ *New Scientist* (November 7, 1998), p. 26; *ibid.* (November 21, 1998), p. 14.

⁴ H. Wexler, *loc. cit.*

⁵ R. Gallant, *Bombarded Earth* (London, 1964).

frequent meteoric bombardments and other cosmic events.¹ Due to the discovery of tropical and sub-tropical remains of plants and animals in both the Arctic and Antarctic regions,² various authorities subscribed to similar ideas in that Earth's rotational pole must have either shifted its location or tilted its direction in space. It was argued that either one of these changes could also account for the occurrence of ice ages. The pole shift theory received its major impetus in 1970 with the publication of Charles Hapgood's *opus magnum* on the subject.³ The axial tilt theory was aired in 1978 by Jack Wolfe who was quoted as saying that "earth's axis of rotation was once less inclined toward the sun." In his view this "could help explain major changes in climate."⁴

In March of the same year, in reporting the discovery of fossil amphibians and reptiles in a mountainous region of Antarctica, John Cosgriff, Jr. also came to the conclusion that: "Clearly, the south pole was then elsewhere than on the Antarctic continent."⁵

In 1980, John White published a book on the subject which should have won as much acclaim as Hapgood's had previously done.

A polar shift theory due to a close passage of an unknown planet, named simply Z, was presented at the University of Bergamo symposium in 2001 by W. Wölfli and W. Baltensperger. Planet Z was there speculated to have been of Martian mass and to have entered the Solar System from the regions of the asteroid belt, the Kuiper Belt, or the Oort Cloud. It may also have originally orbited the giant planet Jupiter. Since it fragmented, with its debris falling into the Sun, planet Z no longer exists.⁶

The problems inherent in these theories of pole shifts and tilts, have already been discussed in the prequel to this volume,⁷ to which the reader is therefore referred.

MAGNETIC FIELD COLLAPSE

Past reversals of Earth's magnetic polarity, deduced from the fossil magnetism in rocks, have been acknowledged for some time. This led Frederic Jueneman to hypothesize what could, or would, occur had the terrestrial field actually collapsed. As he reasoned, the greatest effect "of even a partial collapse" of Earth's magnetic field would "probably" result in an intense cooling. This is a phenomenon that has been observed, albeit on a much smaller scale, in laboratory experiments "where the collapse of a magnetic field induces a cooling effect by slowing or even stopping thermal molecular motion with no net gain or loss of energy."⁸

¹ E. Crew, "Classics of Catastrophism," *S.I.S. Review* V:4 (1980/81), p. 127.

² See here especially, D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 361 ff.

³ C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), *in toto*.

⁴ J. Wolfe as quoted in a 1978 United Press International article titled "Alaska Was Tropical, Expert Says," as cited by John White, *Pole Shift* (N. Y., 1980), p. 12.

⁵ *New Haven Register* (March 5, 1978), as cited in *ibid.*, p. 13.

⁶ W. Wölfli & W. Baltensperger, "Geographic Shift of Earth's Pole Positions After a Close Encounter with an Object of Planetary Size," *Proceedings of the Symposium "Fifty Years After Worlds in Collision by Velikovsky: Classical and New Scenarios of the Evolution of the Solar System"* (Bergamo, Italy, 2002), pp. 78-85.

⁷ D. Cardona, *op. cit.*, pp. 377-381, 391-403.

⁸ F. B. Jueneman, *Raptures of the Deep* (Des Plaines, IL, 1995), p. 122.

"On a planetary-sized scale the cooling effect due to a rapid reduction or collapse of a magnetic field could freeze the atmosphere itself in the vicinity of the magnetic poles, causing the air itself to precipitate as snowflakes in a blizzard. The effects would be far-reaching..."¹

"Could such a phenomenon have occurred, or more to the point did such a thing indeed happen?" asked Jueneman. "And, if it did, what was the cause?"² To that end, Jueneman found himself toying with the idea that meteoric impacts—to which we shall come below—might "adversely" have affected Earth's magnetic field "during the last 10 millennia."³ But meteors have been known to impact Earth without coming anywhere close to collapsing Earth's magnetic field. In order for Jueneman's hypothesis to be seriously considered, one would have to postulate entire fields of sizeable meteors acting in concert, time and again, throughout Earth's geologic past. Scars of impacts left by such meteoric trains have been identified by some as having excavated the hollows now recognizable as the chain of the Carolina Bays and similar depressions. But can it be shown that an incursion of a meteoric train could collapse Earth's magnetic field? It seems more likely that such a collapse would require the interaction of an external electromagnetic, or at least an electrical, force.

METEORIC AND ASTEROIDAL IMPACTS

1988 saw a revival of the meteoric impact theory as a cause for ice ages. Frank Kyte, Lei Zhou, and John Wasson, all from the University of California, blamed the most recent series of ice ages on the fall of a 500 meter diameter meteor which landed in the east Pacific basin some 2.3 million years ago. By throwing up some 20 billion tonnes of water into the stratosphere, an enveloping cloud would have possibly risen to Earth's high altitudes, blocking sunlight over the poles, thus instigating an ice age. For evidence, Kyte and his colleagues pointed to a high concentration of meteoric particles found in sediment of this supposed age in a core retrieved from the region, plus high iridium concentrations in six cores drilled up south west of Cape Horn.⁴

Emilio Spedicato, from the University of Bergamo, Italy, was of similar opinion. Constructing his argument on the hypothesis of Hoyle and Wickramasinghe, he reached the conclusion that the last Ice Age was initiated by a meteoric impact on land, and terminated by one in the ocean.⁵ In Hoyle's case, however, it was oceanic impacts which instigated ice ages—which shows that speculation can be made to account for an either-or cause.

As Trevor Palmer, however, rightly concluded: "The impact of an asteroid of about 1 km diameter would undoubtedly have worldwide effects, but it seems unlikely that an event on this scale could, by itself, bring about the start or finish of an ice age, particularly since about

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*, p. 123.

⁴ Reported in *Chronology & Catastrophism Workshop*, 1988:2, p. 28.

⁵ E. Spedicato, *Apollo Objects, Atlantis and the Deluge* (Bergamo, 1990), pp. 24 ff.

three such impacts would be expected every million years.”¹ Thus, for instance, when Kyte *et al.*’s meteor is compared to the comet which was also claimed to have impacted Earth at the Cretaceous-Tertiary boundary, the one which has been blamed for the demise of the dinosaurs, it is legitimate to question Kyte’s conclusion. The amount of atmospheric disturbance that must have been created by the Cretaceous-Tertiary impact would have dwarfed the atmospheric disturbance produced by Kyte’s postulated meteor. One is therefore inclined to ask why no ice age ensued at the cretaceous-Tertiary boundary.

The twenty-first century saw no abatement of the impact theory. Gregory Jenkins, a meteorologist hailing from the Pennsylvania State University, advanced the opinion that an asteroid slammed into Earth four and a half billion years ago, knocking our world on its side. This touched off “a crazy climate that nurtured the first living things but later triggered giant ice sheets in the tropics.”²

Although Earth was then much balmier than at present, the young Sun was then much fainter.³ Jenkins explains this by postulating that Earth had been rotating sideways at the time. This would explain why Earth’s present polar circles were much warmer than at present, even much warmer than present lower latitudes. By the same token, the present equatorial regions would have taken the place of the present polar circles. This, Jenkins opines, would explain the evidence of glaciers which have been discovered at Earth’s equatorial regions between 800 million and 540 million years ago. “When Jenkins modeled what the climate would have been like during that time if Earth’s axis were tilted at a steep, 70-degree angle, ice appeared at the equator.”⁴

How did Earth regain its former, and now present, 23-degree tilt? Jenkins believes that 540 million years ago, at the start of the Cambrian Period, the buildup of continents near the south pole flipped our planet back.⁵ The possibility of such axial flips due to continental imbalance had, however, already been ruled out years before.⁶ Besides, Jenkins’ theory could, at best, be made to account for but one particular ice age, the one which deposited glacial ice in the equator. It cannot be made to account for those ice ages which deposited glaciers in the northern and/or southern hemispheres.

COMETS AND COMETARY TAILS

In 1979, Fred Hoyle, writing with Elizabeth Butler, opted for the passage of Earth through cometary tails as a cause for ice ages. According to them, Earth’s upper atmosphere would suddenly have acquired a vast amount of dust from such a passage and that this would have increased the reflective power, or albedo, of the atmosphere which would have prevented solar radiation from reaching Earth’s surface. Because Earth’s oceans contain more

¹ T. Palmer, “The Erratic Descent of Man,” *Chronology and Catastrophism Review*, XII (1990), p. 21.

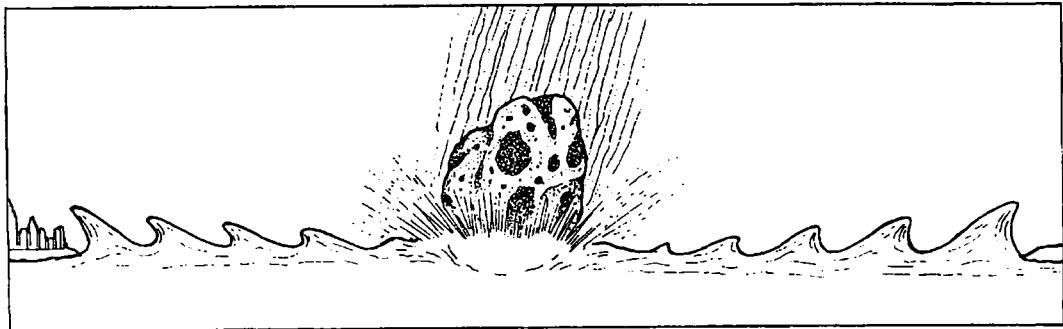
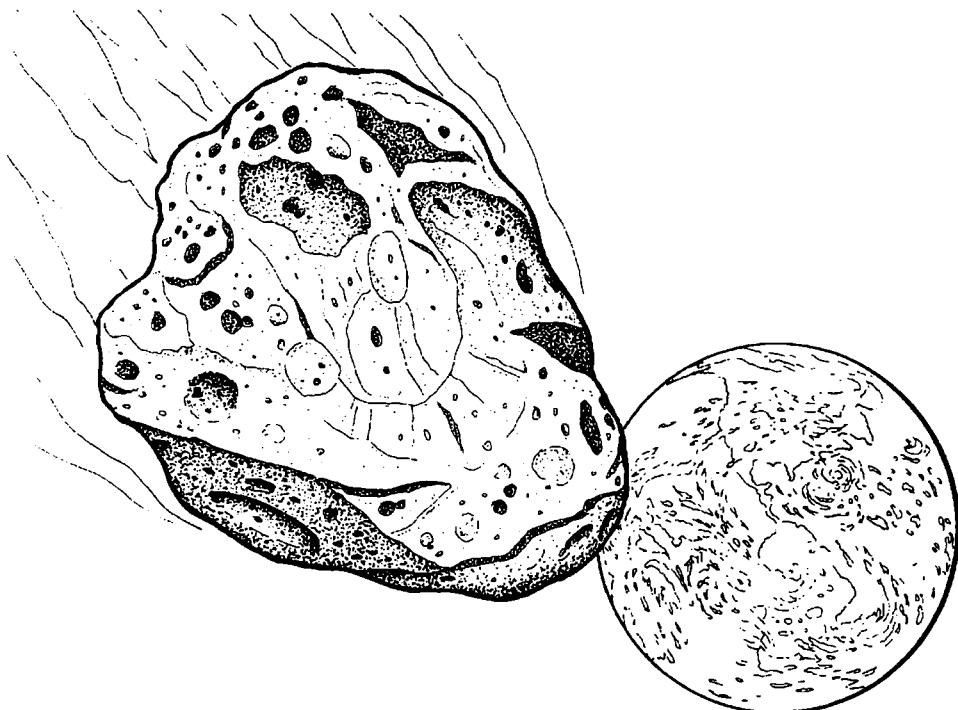
² J. Gorman, “Earth in the Balance,” *Discover* (April 2000), p. 20.

³ See here, D. Cardona, *op. cit.*, pp. 361 ff.

⁴ J. Gorman, *loc. cit.*

⁵ *Ibid.*

⁶ See here, D. Cardona, *op. cit.*, pp. 394 ff.



Impact of asteroid on Earth.
Did such impacts cause Earth's past series of ice ages?
(Illustration by Bruce LaFontaine.)

heat than its land areas, temperature over the land would fall more rapidly than that over the seas. This temporary imbalance would have produced gales with speeds estimated up to one hundred miles per hour, and these, in turn, would have increased the evaporation from the surface of the oceans. Precipitation over the colder land would then also increase, causing prolonged falls of freezing rain.¹ Similar ideas were also proposed by Mark Bailey.²

¹ E. J. Butler & F. Hoyle, "On the Effects of a Sudden Change in the Albedo of the Earth," *Astrophysics and Space Science*, 60 (1979), pp. 505-511.

² J. Abery, "Society News: The 1995 AGM," *Chronology & Catastrophism Workshop* 1995:1, p. 2.

Problems with this scenario include the fact that Earth's northern hemisphere froze in a very peculiar manner, leaving much of Siberia and a large portion of Greenland unglaciated. As Peter Warlow indicated: "On the Butler-Hoyle hypothesis, as with conventional ice-age theories, one would expect a large land mass such as Siberia to be particularly severely affected—but it wasn't."¹

Even more problematical is the fact that our world went through the fabric of the Great Comet of 1861 with nothing much of any consequence occurring here on Earth. The world's albedo was not affected. Earth's atmosphere was not laden with dust. No ice age ensued. True enough, one may argue that not all past cometary tails might have been as tenuous as the one sported by that of 1861. But then the burden of proof would still lie with those who claim so. Besides, it has now been ascertained beyond doubt that, while they may contain a certain amount of dust, cometary tails are mainly composed of plasma.²

But what of *direct* cometary impacts? In the late 1900s, Victor Clube and Bill Napier's theory won the allegiance of many an aficionado. Relying on the Sun's motion through the galaxy, it was reasoned that the Solar System would cross one of its spiral arms at intervals of about 50 million years. "Not only that," they write, "it is moving in such a direction that it must have passed through Gould's Belt only 10 million years ago."³

"The rough periodicity in many geophysical processes is so similar to these intervals that it has long been recognized that terrestrial processes themselves might be triggered in some way by our passage through spiral arms...The problem has been to identify the mechanism giving rise to the geophysical effects."⁴

Clube and Napier solved this problem to their satisfaction by proposing that the galactic arms contain large solid bodies which are gravitationally scooped up in millions by the Solar System in its passage, which would then result in episodes of planetary bombardment. These bodies, according to them, would be of sub-planetary dimensions, or planetesimals, which they envisage as being composed of "cold material of ice or possibly rock, or icy conglomerates." These, still according to them, would account for the comets of the Solar System which, on break-up, can result in a veritable rain of debris on the Solar System planets including Earth.

Among others, this scenario was accepted by Trevor Palmer who correlated it with impact craters which have been associated with the Miocene extinctions.⁵ "Although the relationship between these and similar events and subsequent climatic changes is only at present

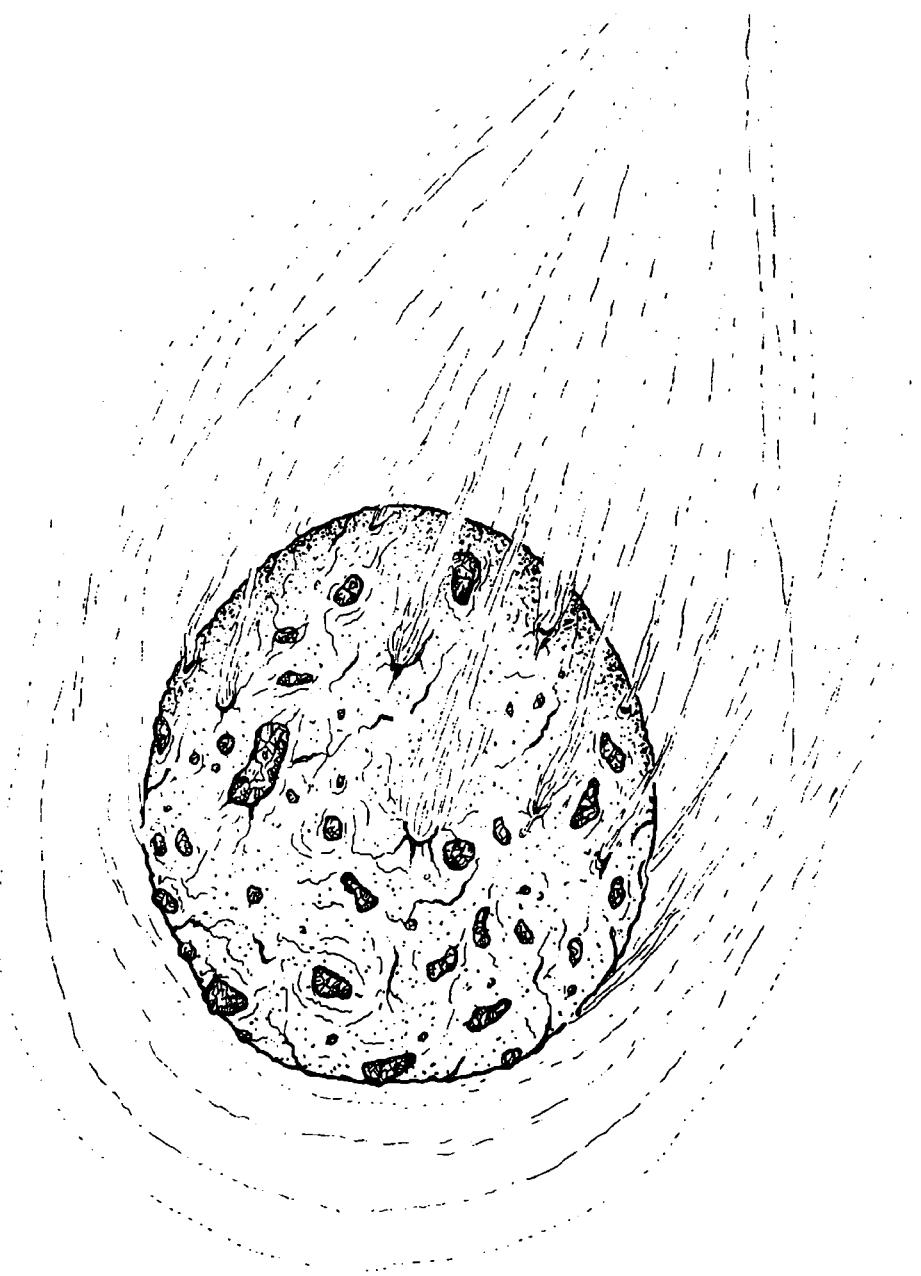
¹ P. Warlow, *The Reversing Earth* (London, 1982), p. 87.

² N. Calder, *The Comet is Coming!* (N. Y., 1980), pp. 76, 81, 85; T. Dickinson, "The Seeds of Life," *Equinox* (July 1997), p. 65.

³ V. Clube & B. Napier, *The Cosmic Serpent* (London, 1982), p. 33.

⁴ *Ibid.*

⁵ W. Alvarez & R. A. Muller, "Evidence From Crater Ages for Periodic Impacts on the Earth," *Nature*, 308 (1984), pp. 718-720.



Nucleus of a comet.
(Illustration by Bruce LaFontaine.)

a matter of speculation," wrote Palmer, "there is no doubt that the latter were far-reaching, culminating 9 Myr later in the Pleistocene Ice Ages."¹

Clube and Napier present a table which intends to show the periodicity of geophysical processes.² They fare rather well when it comes to that section which correlates the major geological boundaries to the time interval between them, showing that the intervals do average out to 57.5 million years—close enough to their stated 50 million years for the Sun's periodic crossing of a galactic arm. When it comes to the principal ice ages, however, the intervals between them fall far short of this, with a maximum of 350 and a minimum of 100 million years, an average of 200 million years. What, then, goes amiss with the theory when it comes to ice ages?

But then, it was the *ending* of the last Ice Age that Hoyle now also blamed on the break-up of a giant comet through the subsequent impacts generated by its debris. It therefore seems that cometary impacts, or that of their debris, can both freeze Earth to cause ice ages and heat it up enough to then melt the ice. How did Hoyle get out of this? Easy enough for him—ice ages are caused by the impact of stony asteroids, which create the atmospheric clouds of dust we are now quite acquainted with, and terminated by the impact of metal-rich asteroids. These latter are claimed to scatter metallic particles, rather than dust, which would absorb heat from the Sun and thus warm up the atmosphere.³ But is it likely that a bombardment by stony asteroids, causing ice ages, would then be followed by a bombardment of metallic ones, thus ending ice ages, in a series of *correctly* alternating sequences throughout Earth's geologic periods?

MINI SNOW BALL COMETS

A different cometary origin of ice ages was proposed by Louis Frank and his colleagues. This theory, in fact, proposed more than just that. Frank *et al.* claim that the water which fills the world's oceans all derived from the bombardment of mini-comets impacting on Earth. The water, claims Frank and his colleagues, was originally contained in these mini-comets, and their disintegration turned Earth's atmosphere into an ice cloud. Naturally enough, this would have drastically lowered Earth's temperature, resulting in a series of ice ages.⁴ That Earth's oceans derived from cometary bombardment was picked up by various other proponents, but since this particular topic is not in and of itself germane to our review of ice age theories, we will reserve it for a future work while concentrating on Frank's theory of ice ages.

Frank's theory rests on the hypothesis that mini-comets—cosmic snowballs no bigger than the size of houses—are hitting Earth's atmosphere at a rate of twenty per minute. The scientific establishment did not take well to this. The editors of *Nature*, for instance, rejected his earlier paper on the strength of "a representative poll" between "experts" in the field. As

¹ T. Palmer, *op. cit.*, pp. 15-16.

² V. Clube & B. Napier, *op. cit.*, p. 34.

³ F. Hoyle, *The Origin of the Universe and the Origin of Religion* (London, 1993), pp. 38-39.

⁴ L. A. Frank, *et al.*, *Des Moines Register* (April 2, 1986).

Robert Matthews reported in *The Sunday Telegraph*: "Frank's attempt to answer his critics with fresh evidence by using major telescopes were met with obstruction and foot-dragging, with astronomers insisting that the enterprise was a waste of time."¹

Photographic evidence from NASA satellite images of what purportedly showed the propensity of such cosmic snow balls in the vicinity of Earth, which were first noticed by one of Frank's students in 1982, seemed to turn the tables in Frank's favor. Identified by others as flaws in the photographic plates, Frank reasoned that the images, nothing but tiny black dots, appeared to behave far too regularly to be dismissed as such. And then, when Frank did finally succeed in obtaining access to a telescope, he claimed that his observations revealed the objects he had anticipated streaking across Earth's atmosphere at 20,000 miles per hour, as he had predicted. "It made no difference," Matthews reported, "the findings were still rejected for publication."²

But then, "after ten years of obstruction and ridicule," Frank designed cameras which were utilized in NASA's Polar spacecraft and the pictures from these were hailed as revealing the existence of the small comets "beyond all doubt."³

"Spectacular images taken by cameras show the comets streaking into the atmosphere before dumping their water. They arrive at the rate of about one every three seconds—just as Frank had claimed."⁴

The truth of the matter seems to be that what Frank had managed to photograph were two entirely different, but related, phenomena: (1) holes that seem to have been punched in Earth's ionosphere,⁵ and (2) glowing ionized trails,⁶ both of which he then attributed to mini-comets. Even so, some continued to claim that the "spots" photographed by Frank are caused by nothing other than "instrumental" defects. Others, however, realized that the same cannot be said for those images which clearly show bright streaks which are "sometimes comet-like in appearance." These have since been identified as "ionization tracks produced by cosmic rays or other penetrating energetic particles interacting with [the] camera."⁷

None of these objections resulted in discouraging Frank who not only continued to maintain his views, but added to them by presenting new studies which claimed that the bombardment of mini-comets was seasonal. More than 25,000 mini-comets, each one weighing from 20 to 40 tons, bombarded Earth *each day*, he continued to maintain. These numbers, however, varied with the seasons. In analyzing data collected by Dynamics Explorer I in 1981, and comparing it to similar data gathered by Polar in 1997, Frank and his colleague, John Sigwarth, detected "a mid-January lull" in the number of the relevant phe-

¹ R. Matthews, "Ice Cubes From Space Prove the Scoffers Wrong," *The Sunday Telegraph* (June 1, 1997).

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

⁵ "Louis Frank Scores Again," *SIS Internet Digest*, 1997:2, p. 10.

⁶ G. Parks, *et al.*, *Geophysical Research Letters*, 24:24 (1997), pp. 3109-3112.

⁷ *Ibid.*

nomena. This, they claim, should be enough to silence those critics who continue to assume that Frank's photographic evidence indicates nothing but "electronic noise."¹ But even this newer revelation was contested.²

Frank and Sigwarth retaliated. Using an automated mathematical formula, they claimed to have managed to filter out the electronic noise from NASA's Polar satellite data and what resulted was a "hands-off" analysis which indicated that "instrumental effects were not major contributors." The evidence from this analysis that included such "facts" as an increase in the number and size of the atmospheric holes when imaged from lower altitudes; an increase in number when photographed during local-morning time periods; and a variation in number depending on the season.³ As Frank himself reported:

"What critics of the small comet theory were analyzing was instrument noise. If you strip away the noise from the data, as they properly should have done, what remains clearly validates the reality of atmospheric holes. Our most recent paper is the only comprehensive paper on this topic and shows, without reasonable doubt, that the atmospheric holes are indeed a real phenomenon."⁴

The question, however, remains: *What causes these atmospheric holes?* Does it necessarily have to be the mini-comets postulated by Frank. Wallace Thornhill does not think so, and refers to these holes as having been punched by meteors which then generate another class of "mysterious" phenomena, namely red sprites and blue jets. These constitute electrical, or lightning, discharges which occur high in Earth's ionosphere, often seen above storm clouds.⁵ Thornhill's own proposition is that "storm clouds which span great heights are merely providing a convenient path to ground for electric charge conducted through the ionosphere from [Earth's] plasmasphere." A connection with meteors is then provided since it had already been suggested that "red sprites may be triggered by meteors as they blaze an ionized, conducting trail through the ionosphere and mesosphere."⁶

But even if one had to concede Frank's hypothesis, would such bombardment by mini snow ball comets have been enough to cause the series of ice ages postulated by glaciologists? The arrival of these comets at the rate of one every three seconds translates into 20 impacts per minute, which would account for 28,800 mini-comets hitting Earth every day—more than ten million and a half per year. And yet we are not in the middle of an ice age. Again, one might argue that this bombardment, if it really takes place, could have been much more extensive in the past. True—but it would first have to be shown beyond all reasonable

¹ R. Baalke, "Louis Frank Finds 'Small Comets' are Seasonal," as reported in *SIS Internet Digest* 1998:2, p. 11.

² A. Yee, "More Trouble for Frank's Mini-comets Theory," in *ibid.*, p. 14.

³ L. A. Frank, *Journal Of Geophysical Research—Space Science*, as cited by A. Yee, "Small Comets Are Real," reported in *SIS Internet Digest* 1999:1, p. 9.

⁴ *Ibid.*

⁵ W. Thornhill, "Snowball Mini-Comets," *Thoth* (electronic newsletter sponsored by KRONIA Communications) I:16 (June 15, 1997), pp. 5-6.

⁶ *Ibid.*, p. 8; see also, *idem*, *The Electric Universe* (Portland, 1997), pp. 38-40.

doubt that the atmospheric holes and ionized trails are *really* caused by mini snowball comets. And there are various objections to this claim that Frank has yet to meet. As Dave Morrison pointed out:

“...we should all ask if these objects could have been missed by other detection techniques, including our eyeballs looking up at the night sky. After all, [Frank] is talking about roughly Hiroshima size flashes happening at the rate of 10 per minute [twenty per minute, actually], rather than the accepted rate of once every few months. How could these have been missed?”¹

Or, as Thornhill astutely noted: “It is unlikely the military would have missed them.”² So, similarly with Al Harris of NASA’s Jet Propulsion Laboratory.³ A further objection can also be raised in relation to the Moon since such mini-comets, were they to exist, should also be impacting our lunar neighbor. But since the Moon lacks an atmosphere, these mini-comets would not have melted on the way down. They should thus be producing new impact scars, if not as craters, at least in the nature of hot spots, of measurable and/or otherwise detectable size. No such new scars have so far been discovered.⁴

SOLAR CYCLES

“If the sun’s heat were to drop only 13 per cent, the whole earth would soon be covered with a mile-thick mantle of ice.” So wrote Ernst Öpik in 1958.⁵

In his analyses of various theories which had been proposed for the occurrence of ice ages, Öpik reached the conclusion that “[i]n the end we always come back to the simplest and most plausible hypothesis: that our solar furnace varies in its output of heat.”⁶

This, too, was an old theory proposed by Richard Flint in 1947. Termed by him the Solar-Topographic Hypothesis, he even claimed that the theory was even older.⁷ “The trouble with this idea,” Öpik himself admitted, “has been that it is difficult to see what physical process in the sun could produce the kind of fluctuations we see reflected in the climatic history of the earth.” Earth’s periodic ice ages, he goes on, “cannot be accounted for by any simple scheme of alternate waxing and waning of the sun.” And yet it was his belief that, “with certain reasonable assumptions about the composition of the sun,” it is possible to theorize a solar

¹ D. Morrison as quoted in *Thoth* (electronic newsletter sponsored by KRONIA Communications I:16 (June 15, 1997), pp. 5-6.

² W. Thornhill, “Snowball Mini-Comets,” see above.

³ *Ibid.*, p. 6.

⁴ J. A. Grier & A. S. McEwen, *Geophysical Research Letters*, 24:24 (1997), pp. 3105-3108; see also B. Rizk & A. J. Dessler, *ibid.*, pp. 3121-3124.

⁵ E. J. Öpik, “Climate and the Changing Sun,” *Scientific American* (June 1958). [NOTE: See also *idem*, “The Ice Ages,” in P. Cloud (Ed.), *op. cit.*, pp. 869 ff.]

⁶ *Ibid.*

⁷ R. S. Flint, *Glacial Geology and the Pleistocene Epoch* (N. Y., 1947), p. 512 and elsewhere throughout the work.

mechanism that would account for just such fluctuations.¹ What were these “reasonable assumptions”?

First of all, Öpik subscribed to the belief that ice ages have occurred about every quarter of a *billion* years, with each one lasting just a few *million* years. He also believed that we are, at present, in a relatively warm interglacial interlude of what he calls “our ice age.” His theory then demands that the heat output of the Sun would have had to have fluctuated by 8 or 9 per cent “from its present norm.” A reduction by 8 per cent would reduce Earth’s overall temperature to the 41 degrees that has been calculated for the coldest glacial periods. A rise of 9 per cent would raise the global temperature to an average 72 degrees. Öpik therefore had to come up with a mechanism which would account for all this. What he came up with was a *theoretical* cycle for the Sun which commences with its normal state. Convection currents then promote nuclear reactions in the core which, while being relatively small, is rich in hydrogen fuel. Hydrogen from the surrounding mantle diffuses into the core, but the Sun’s metallic elements remain behind due to their slower diffusion. These metallic elements then act as a barrier to the energy radiating *from* the core. This causes the Sun to contract, while the metallic barrier heats up, developing convective currents of its own which spread to increase the core. Thus the energy output is itself increased, after which the Sun expands using twice the excess energy. It is the reduced radiation that results from this cycle that causes ice ages to develop on Earth. At the end of the cycle, needless to say, the Sun returns to its normal state.²

We will let pass, for the time being, that the above constitutes nonsense to those who believe the Sun to be electrically, rather than nuclearly, fueled. The problems with the theory is that the amount of metallic elements in the sun has to be assumed to be 3 per cent, while most authorities could vouch for only 1 per cent. Moreover, the theory fails to explain the short-term fluctuations that are believed to occur within any one given ice age, that is the so-called interglacial periods. Flint himself had already raised this objection to his own work,³ so that, again, there was nothing new here. Öpik’s “guess” is that these interglacial periods represent “a kind of ‘flickering’ of the disturbance in the sun—like a candle flame blown by the wind.” It is such guesswork, together with the piling of assumptions, which had already been raised by Flint,⁴ that has kept Öpik’s theory from receiving general acceptance. In a later work, Flint himself was honest enough to admit that:

“Whether [the theory] will stand up under analysis...remains to be seen. At best it is *only a very general framework*. Undoubtedly the true explanation of the Pleistocene climatic changes is much more complex than the concept as stated.”⁵

¹ E. J. Öpik, *loc. cit.*

² *Ibid.*

³ R. S. Flint, *loc. cit.*

⁴ *Ibid.*

⁵ *Idem, Glacial and Pleistocene Geology* (N. Y., 1957), p. 503 (emphasis added).

SUN SPOTS AND NEBULAR DUST

In a paper which appeared in *New Scientist* at the end of 1978, the occurrence of ice ages was blamed on a major variation in sunspot cycles. An alternative to this model was also proposed by the same authors, who suggest that ice ages could also have been caused by Earth's encounter with nebular dust during the Solar System's journey through the galaxy.¹ The theory concerning Earth's passage through an interstellar cloud of dust was aired again in 1995, the event supposedly having transpired some 2000 to 8000 years ago, with the dust cloud owing its origin to a supernova which flared up 250,000 years ago.² No evidence of any worth was presented to support either of these two postulates.

SUPERFLARES

A different type of solar cycle was being theorized at the turn of the century. This one focused on solar flares, those enormous outbursts on the Sun that bombard Earth with torrents of subatomic particles moving at high velocity. As is known, Earth's magnetic field, to say nothing of the atmosphere, acts to dampen, or even negate, the potentially lethal effects of the Sun's ordinary flares. It was however found out that other Sun-like stars have a tendency to brighten briefly by up to a factor of twenty. Bradley Schaefer, then hailing from Yale University, is of the belief that these "stellar flickers" are caused by "superflares, millions of times more powerful than their common cousins." Had they to occur on our Sun, such superflares would fry Earth within a few hours. "And while too much solar activity could be deadly, too little of it is problematic as well."³

"Sallie Baliunas at the Harvard-Smithsonian Center for Astrophysics says many solar-type stars pass through extended quiescent periods, during which they become nearly 1 percent dimmer. That might not sound like much, but a similar downturn in the sun could send us into another ice age. *Baliunas cites evidence that decreased solar activity contributed to 17 of the 19 major cold episodes on Earth in the last 10,000 years.*"⁴

Scientists are hard-put to account for stellar superflares,⁵ but that need not deter us from theorizing what they could do to any planet orbiting such stars. One problem here is that, despite Schaefer's belief, it is not known that stellar superflares have anything in common with our Sun's flares. In fact it seems more likely that stellar superflares are more akin to recurring novae. A bigger problem, of course, is that there is no evidence that our Sun can engage

¹ D. Clark, *et al.*, "Celestial Chaos and Terrestrial Catastrophes," *New Scientist* (December 14, 1978), pp. 861-863.

² *New Scientist* (May 20, 1995), p. 30 as cited in "Dusty Coming and Goings." *Chronology & Catastrophism Workshop*, 1995:2, p. 23.

³ C. S. Powell, "Twenty Ways the World Could End Suddenly," *Discover* (October 2000), p. 53.

⁴ *Ibid.* (emphasis added).

⁵ *Ibid.*

in such excesses. It has, however, been argued that it cannot be entirely ruled out that our Sun can be capable of generating milder but still disruptive behavior.¹ But, as usual in such cases, conjectures cannot stand in for evidence.

SUPERNOVAE AND COSMIC RAYS

Competing alternatives continued to pile in the late twentieth and well into the twenty-first century. One of these, aired in 1999, blamed the onset of ice ages on cosmic rays, those high velocity atomic particles which are believed to be created by the blasts from exploding stars. These cosmic rays bombard Earth's atmosphere incessantly but without any perceivable harm. Henrik Svensmark, from the Danish Space Research Institute, has however rethought the process, concluding that these rays not only tend to greatly influence Earth's weather but may even trigger ice ages. According to Svensmark, these cosmic rays streaking through the atmosphere collide with carbon atoms, thus creating reactions that aid in the triggering of cloud formation. Increased cloud cover would then lower global temperatures by reflecting sunlight back into space. Because such collisions create radioactive carbon-14, Svensmark could test his theory by studying sediments containing this signature. He discovered that carbon-14 levels in sediments had increased "by almost a factor of two" during the so-called little ice age which occurred in the years between 1300 and 1850.²

But, little ice age aside—which event can hardly be compared to bona fide ice ages—cosmic rays at present are not creating extensive glaciation so that, as with other theories, one would have to assume that the cosmic ray bombardment on Earth had to have been much more intense in the past. But this, then, would require a cause for the increase in bombardment and, to be sure, a cause was soon concocted by another theoretician.

Reviving a theory originally proposed in 1995, Nir Shaviv, who wanted to blame all previous ice ages on supernovae, started by commenting on the rarity of these events. He then circumvented this problem by relying on the Solar System's periodic passage through the arms of our galaxy. Where Clube and Napier found these arms chock-full of comets, Shaviv found them teeming with supernovae. As Jeffrey Winters reported in 2003:

"Overall, supernovas are rare, but as the solar system circles through the Milky way, it sometimes passes through one of our galaxy's spiral arms, where large numbers of massive stars form and explode as supernovas. All those detonations fill the spiral arms with cosmic rays, fragments of atoms traveling close to the speed of light."³

As we have just seen, Svensmark is of the opinion that these cosmic rays can create clouds when they hit and pass through Earth's atmosphere. These clouds, Shaviv agrees, can then trigger global cooling and, thus, a series of ice ages.⁴

¹ *Ibid.*

² "Weather From Outer Space," *Discover* (April 1999), p. 25.

³ J. Winters, "Galactic Ice Age Threat," *Discover* (January 2003, Special Issue), p. 50.

⁴ *Ibid.*

As an aside, what the fluctuation rate of carbon-14 levels, as proposed by Svensmark, does to radio-carbon-derived dates has not been commented upon by anyone in orthodoxy.

LACK OF CONSENSUS

Given the various theories of ice ages discussed above, all of which are burdened with faults, and finding nothing new to offer by way of a valid alternative, some authorities were forced to opt for a *combination* of causes. So, for instance, Flavio Barbiero.

Writing in 1974, Barbiero selected two of these past theories and welded them into an abashed alloy of his own making. He first maintained that, because of the Moon's gravitational attraction, Earth is unable to sustain its rotational axis at the same angle to the ecliptic. Earth's tilt, according to him, varies from between 15 to 20 degrees over a period calculated at about 20,000 years. This causes the ice at the poles to increase and decrease accordingly.¹

But then, still according to Barbiero, 12,000 years ago, Earth was struck by an asteroid or a comet. The ensuing cataclysm shifted the poles, which event enshrouded Antarctica in a mile-thick mantle of ice. The same event succeeded in melting, and thus reducing, the great ice caps in the north²—never mind that both caps are known to have suffered glaciation at approximately the same time.

Barbiero relied in part on the work of the Austrian geologist, Otto Muck, who had claimed that the impacting body, weighing 2 billion tons, impacted in Florida, breaking into two large fragments, on June 5, in the year 8496 B.C., at 20:00 hours (local time).³ Such precision—or should one say omniscience?—leaves one aghast!

Barbiero then burdened this scenario with the belief that Plato's Atlantis had actually been located in Antarctica—which item was later picked up by various other dilettantes—the remains of the civilization of which now naturally lies beneath the ice.⁴

I would not normally have even included Barbiero's hypothesis, but, as Peter Tompkins noted: "A preface to Barbiero's book by the director of the Italian Polar Geographic Institute, Silvio Zavatti, attests to the seriousness with which the thesis was received."⁵

Followers of Barbiero and those who subscribe to the Antarctic/Atlantis theory will hate me for saying this, but I would rather pass this up without further comment.

Steven Robinson, *who vouched for only one ice age*, was another theoretician who blamed ice ages on a dual factor: the tilt of Earth's axis and high volcanic activity.⁶

Trevor Palmer is of the opinion that there were more than just two causes working in concert behind the build-up of ice that caused ice ages. As he stated:

¹ F. Barbiero, *Una Civiltà Sotto Ghiaccio* (Milan, 1974).

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

⁵ P. Tompkins, *The Mysteries of the Mexican Pyramids* (N. Y., 1976), p. 382.

⁶ S. J. Robinson, "On the Disproportion Between Geological Time and Historical Time: Part Two—Of Earth, Fire and Water," *Chronology and Catastrophism Review* (1993 Special Issue), pp. 28-31.

“...it seems likely that a proper explanation for Ice Ages must involve the interplay of several factors including asteroid impacts, vulcanism, atmospheric dust, continental drift and Milankovitch cycles. They were clearly complex events.”¹

It can thus be stated that matters have not improved since Hooker’s day. At the time of this writing, no consensus has yet been reached concerning the cause of ice ages. As Gregg Easterbrook noted: “Few mysteries of natural science are as vexing.”² Just as vexing is the question of what *terminates* ice ages.

“If scientists have been perplexed by the genesis of ice ages, figuring out why they stop—why the glaciers start to roll back—has been even more difficult. Some calculations suggest that once ice sheets cover much of the Northern Hemisphere, runaway glaciation ought to lock the Earth forever in deep freeze. Why? Because so much of the land, turned white by ice, will reflect more solar warmth back into space. But thus far runaway ice ages have not occurred.”³

And:

“How ice ages occur is still a mystery, despite theories of orbital changes and ocean currents [to say nothing of the other theorized causes discussed above]...How the very earliest ice ages came to an end is an even greater problem.”⁴

As Francis Hitching reported:

“Nobody knows what triggered off the melting of the ice—as Cesare Emiliani, the eminent oceanographer and geologist put it: ‘Question: did the ice melt by surging under its own weight (mechanical collapse), and *therefore* temperature rose, or did temperature rise and *therefore* ice melted? If the latter, what produced the extremely rapid temperature rise?’”⁵

By 1980, John White was still following Charles Hapgood into believing that ice ages were caused by shifts in Earth’s axis and, therefore, had ended through the same mechanism, since every pole shift would have reallocated the centre of the ice caps, both north and south, to different localities.⁶ The problems inherent in Hapgood’s mechanism for such pole shifts has, however, already been discussed in the prequel to this volume,⁷ and there would be no point in reiterating it all here. As Fred Hoyle noted:

¹ T. Palmer, “Catastrophes: The Diluvial Evidence,” *Chronology & Catastrophism Review*, 2000:1, p. 112.

² G. Easterbrook, *op. cit.*, p. 62.

³ *Ibid.*, p. 63.

⁴ “Ice Age Problems,” *Chronology & Catastrophism Review*, 1998:1, pp. 38-39.

⁵ F. Hitching, *The World Atlas of Mysteries* (London, 1979), p. 164 (emphasis as given).

⁶ J. White, *Pole Shift* (N. Y., 1980), p. 99.

⁷ D. Cardona, *op. cit.*, pp. 391 ff.

"Left to itself, it is hard to see how anything internal to the Earth could ever break the stable grip of an ice-age. Thus to understand the cause of interglacials [to say nothing of the end of ice ages] we must look to external catastrophic events."¹

Yet, despite the fact that he had his own theory to push forward, even he was forced to finally admit that "despite the great cost and effort that has gone into modeling the terrestrial climate system, our understanding of glacial cycles and their forcing mechanism remains rudimentary to say the least."²

The date concerning the end of the Pleistocene Ice age is just as controversial. In the late nineteenth century, basing his conclusion on the rate of retreat of Niagara Falls, Grove Karl Gilbert had calculated the end of the glacial retreat at 7,000 years ago, which was a drastic reduction from the previous estimate of 30,000 years "and even more."³ This was revised in 1878 by Gerard de Geer on the basis of sediment accumulation to about 12,000 to 14,000 years ago.⁴ Albrecht Penck and Eduard Brückner vouched for 20,000 years ago.⁵ But then, on the basis of radiocarbon dating, it was "shown" that, 10,000 to 11,000 years ago, the ice must have been still *advancing* rather than retreating.⁶ A glacial advance was, by the mid-twentieth century, also being reported to have taken place a mere 3000 years ago.⁷ Rates of glacial melting were estimated, refined, and corrected, only to be recalculated over and again. And so it went, round and round the mulberry bush.

This merry-go-round continued into the end of the twentieth century. Thus, in 1983, Claus Hammer calculated that the last Ice Age ended 10,400 years ago.⁸ But by the end of 1986, the retreat of the glaciers and the termination of the Ice Age was pin-pointed at only 7,000 years before the present.⁹ Three years later, on the basis of ice cores retrieved from the Greenland glaciers, Sean Mewhinney vouched for 11,000 years ago as the correct date for the end of the Ice Age,¹⁰ thus conforming with Hammer's conclusions. The following year Mewhinney reiterated his ice core argument with the end of the Ice Age still being placed at 11,000 years ago, or, to be quite fair to him, as between 10,000 and 11,000 years ago.¹¹ Then, in 1997, on the basis of past changes in the Western Desert of Egypt and sea-bed cores

¹ F. Hoyle and C. Wickramasinghe, "Cometary Impacts and Ice Ages," as reported on the Intersect electronic newsgroup sponsored by KRONIA Communications, March 27, 2001.

² *Ibid.*

³ W. Chorlton, *op. cit.*, p. 95.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ F. Johnson, in W. F. Libby, *Radiocarbon Dating* (1952), p. 105.

⁷ See here the reports in *Science* (September 24, 1954 & April 8, 1955), as cited by I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 158.

⁸ W. Immen, "Expert Believes Last Ice Age Ended 10,400 Years Ago," *Globe & Mail* (May 27, 1983).

⁹ S. Begley & L. Lief, "The Way We Were," *Newsweek* (November 10, 1986), p. 62.

¹⁰ S. Mewhinney, *Ice Cores and Common Sense* (no publication place given, 1989), p. 5.

¹¹ *Idem*, "Ice Cores and Common Sense," *Catastrophism and Ancient History* XII:2 (July 1990), pp. 117, 128, 129.

drilled off the coast of British Columbia, as well as other data, the end of the Ice Age was upped to 14,000 years ago.¹ In turn, by 2002, this date was once again raised to 18,000 years ago.² But by the *end* of 2002, the end of the Ice Age was being touted as having occurred 12,000 years ago.³

It is therefore understandable that some have even questioned the past occurrence of ice ages, claiming that they never took place, and that the signs which have been touted as evidence for glacial advances and retreats have simply been misinterpreted.

¹ Reported in “Recent Climate Changes,” *Chronology & Catastrophism Review*, 1997:2, p. 41, where the original sources are cited.

² E. Dobb, “What Wiped Out the Dinosaurs,” *Discover* (June 2002), p. 39.

³ R. A. Bindschadler & C. R. Bentley, “On Thin Ice?” *Scientific American* (December 2002), p. 100.

Chapter 4

Unorthodox Schemes

DISLOCATED POLAR CAPS

Prime among those who believed ice ages never occurred was Immanuel Velikovsky. And yet he still had to account for the presence of an ice field in Earth's northern latitudes much farther south than the periphery of the present ice caps. How did he reconcile this without the advent of an ice age?

In 1955, Velikovsky built a case for a sudden onset of ice due to the tilting of Earth's axis by an external source. The heating of Earth's oceans brought about by the interaction of magnetic fields between our globe and this external source, which would also have induced worldwide volcanism, would have resulted in the evaporation of Earth's hydrosphere to a great depth. As he theorized:

"Water evaporated from the oceans would rise in clouds and fall again in torrential rains and snowfalls. Clouds of dust, ejected by numerous volcanoes and swept by hurricanes from the ground, and possibly dust clouds of extraneous origin...would keep the rays of the sun from penetrating to the earth."¹

But because of the heated Earth, all falling snow would have melted "before reaching the ground or soon thereafter." The ice of the polar regions would also have melted, creating floods which would have swept out of the Polar Circle. Mountain glaciers, too, would have thawed out, inundating the valleys below them. Falling "again and again in a sunless world," however, the falling snow would eventually reach the ground without melting, turning "not into water, but into ice."²

"In the course of the years the incessant action of the snow would cool the ground in the higher latitudes to such an extent that a permanent cover would be built. And the earth would go on shuddering for centuries, slowly quieting down, and as time passed one after another the volcanoes would burn themselves out."³

In what way, then, was Velikovsky's proposed scenario different from that of previous attempts? Axial tilts, heating of the oceans, volcanism, dust clouds, hindrance of solar rays, and even external causes, had all been proposed before and/or since then.

¹ I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 137.

² *Ibid.*

³ *Ibid.*, p. 138.

Judging by his previous work,¹ Velikovsky would have had in mind an errant planet posing as the external cause behind the onslaught of ice. One of these errant planets, according to him, had been the planet Venus which interacted with Earth in a near-collision which he dated to 1500 (or 1450) B. C. He therefore became quite confident that the radiocarbon dating of wood, discovered in glacial till ascribed to the Late Wisconsin advance of the Pleistocene Ice Age, had to be correct. As reported by H. E. Suess, the age of this wood came out at 3300 ± 200 years.² This would then date the Late Wisconsin glaciation to 1300 ± 200 years B.C.—thus close to 1500 B.C.—which accorded perfectly well with Velikovsky's date for the Venus encounter. While other proponents had fingered external causes, such as comets, meteorites, and/or asteroids, none of them had till then blamed ice ages on an errant planet, let alone the planet Venus. (Wölfli and Baltensperger's errant planet Z, discussed in the last chapter, was proposed long after Velikovsky.)

But how did all this *negate* the occurrence of ice ages? As Velikovsky had earlier explained:

"If we look at the distribution of the ice sheet in the northern hemisphere, we see that a circle, with its center somewhere near the east shore of Greenland or in the strait between Greenland and Baffin Land [read 'Baffin Island'] near the present north magnetic pole, and a radius of about 3,600 kilometers, embraces the region of the ice sheet of the last glacial age. Northeastern Siberia is outside the circle; the valley of the Missouri down to 39° north latitude is within the circle. The eastern part of Alaska is included, but not its western part. Northwestern Europe is well within the circle; some distance behind the Ural Mountains, the line curves toward the north and crosses the present polar circle.

"Now we reflect: Was not the North Pole at some time in the past 20° or more distant from the point it now occupies—and closer to America? In like manner, the old South Pole would have been roughly the same 20° from the present pole."³

In other words, what transpired 3500 years ago, according to Velikovsky, was a shift of the terrestrial axis brought about by Earth's close encounter with the planet Venus. The heat generated by this confrontation would have melted the old polar caps, while the continuous precipitation would eventually have formed the present ice caps. Thus, still according to Velikovsky, the signs left behind by what glaciologists believe to have been the Pleistocene Ice Age would have been those left behind by the previous ice cap. In other words, Earth's polar caps would have merely been dislocated. No ice age, *per se*, would have ensued.

As we have already seen, in 1958, Charles Hapgood came out with a similar theory,⁴ revised in 1970,¹ but one that was bereft of any errant planets. Rather than a tilt of Earth's axis,

¹ *Idem, Worlds in Collision* (N. Y., 1950), *in toto*.

² *Idem, Earth in Upheaval* (N. Y., 1955), p. 158.

³ *Idem, Worlds in Collision* (see above), pp. 325-326.

⁴ C. Hapgood, *Earth's Shifting Crust* (N. Y., 1958), *in toto*.

Hapgood blamed the displacement of Earth's polar caps through a shifting of the terrestrial crust. Contrary to Velikovsky, however, Hapgood pinpointed the previous North Pole not in Baffin Bay—i.e., between Greenland and Baffin Island—but further south in Hudson Bay. At first believed to have been occasioned by the weight of the ice itself, Hapgood was later made to realize that such could not have been the cause behind the shifting crust.² As he himself was eventually forced to admit, the cause of the shifting crust, *if it ever really took place*, remains bereft of a “satisfactory explanation.”³ Various other problems inherent in the shifting crust scenario have already been discussed in the prequel to this work.⁴

THE ICE DUMP

Donald Patten, a geographer by training and an avowed Biblical fundamentalist, came up with a theory that has a certain charm to it, although, to be sure, he was more interested in proposing a cause for the Biblical Flood, or Deluge, than he was in the occurrence of ice ages. Even so, since, in his opinion, both events were the outcome of the same cause, it behooves us to take note of what he had to offer. First presented in a major work published in 1966,⁵ Patten was at least astute enough to raise valid objections to past ice age theories. Like Velikovsky, he, also, wrought a scheme involving an errant planet; but that is where the similarity ends. His own hypothesis was that the ice which constituted the Pleistocene Ice Age was delivered by an astral visitor from outer space. Casting aside the Biblical fundamentalist agenda behind Patten’s theory, we present it here because the scenario is not itself beyond the realms of possibility. Basing his theory on the belief that bodies at the edge of the Solar System, as well as others well within it, are believed to be mainly composed of ice, he reasoned that:

“...it is not inconceivable that an astral visitor from the remote areas of our solar system would possess ice. Most do, and many consist almost entirely of ice. Nor is it inconceivable that such an astral visitor could contain ice in accompanying satellites (Uranus does), in rings (Saturn does), in belts (Jupiter has belts and bands), or merely ice in its crust.”⁶

Earth’s past burden of ice, according to him, would have been delivered by this astral visitor. Writing with his son Philip in 1979, he succinctly phrased his overall theory in the following manner:

“The origin of a massive ice dump was a small, frozen satellite-sized body, comprised of water ice, possibly between 430 and 500 miles in diameter. Possibly it was a satellite of another planet which engaged the earth in a dramatic and devastating flyby...”

¹ *Idem, The Path of the Pole* (N. Y., 1970), *in toto*.

² *Ibid.*, p. xi.

³ *Ibid.*

⁴ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 394 ff.

⁵ D. W. Patten, *The Biblical Flood and the Ice Epoch* (Seattle, 1966), *in toto*.

⁶ *Ibid.*, p. 127.

"The transport mechanism was a collision or near collision-course orbit..."

"Upon fragmentation, roughly 10,000 to 15,000 miles from the earth's core, and hence 6000 to 11,000 miles from earth's surface, the icy particles scattered into three trajectories. One trajectory flew toward the earth, like a shower of meteorites. Fragments of ice entered the atmosphere like meteors and with the heat of friction vaporized and precipitated to earth. It would not take very much ice, astronomically speaking, to create in this way a sudden rainfall equivalent to 100 feet of water per square foot of earth surface, which is about 200,000,000 square miles. This concept must be kept in alignment with the many ancient flood legends among nearly all primitive peoples, wherein the onset of the Biblical Flood event was a day—*one* day. This earthbound trajectory might account for 10 to 20 percent of the icy fragments."¹

So much for the Deluge. But how did Patten make this same astral visitor account for the Ice Age? While a second trajectory, accounting for perhaps 15 to 25 percent of the icy fragments, was swept away into interstellar space, a third trajectory began to orbit earth as a ring around the equator. The Sun would then have charged the particles which, interacting with Earth's geomagnetic field, were funneled, much like the auroras, toward both poles where they fell without melting as ice and snow. "Thus the ice age took a month or so, not tens of thousands of years, to form."²

Seven years later, having attracted the attention and support of two other fundamentalist scientists, Ronald Hatch and Loren Steinhauer, Patten co-authored a second book with them in which they expounded on seven distinct cosmic catastrophes as they saw them encoded between the lines of the Old Testament verses.³ Again, we shall cast all that aside and concentrate on what they had to offer concerning the Ice Age. Keeping to Patten's original hypothesis, the icy visitor was now described as either having been the planet Mercury or a satellite of Mercury.⁴ Writing in support of their theory in 1977, William Thompson alluded to the "astral body" as having been "probably Mercury."⁵ But then, in 1988, Patten revised his theory, now blaming the Deluge and the ice dump on the fragmentation of a previous icy satellite of Mars during a close flyby of that planet.⁶

One should not castigate Patten for his change of mind because, after all, that is the way in which theories should be constructed, through refinement dictated by new evidence. Even so, leaving aside my own disbelief of the entire scenario, Patten's theory suffers mostly from

¹ D. W. & P. A. Patten, "A Comprehensive Theory on Aging, Gigantism and Longevity," *Catastrophism and Ancient History* II:1 (August 1979), pp. 34-35 (emphasis as given).

² *Ibid.*, p. 37.

³ D. W. Patten, R. R. Hatch, & L. C. Steinhauer, *The Long Day of Joshua and Six Other Catastrophes* (Seattle 1973), *in toto*.

⁴ *Ibid.*, p. 307.

⁵ W. I. Thompson III, "Extraterrestrial Origin of the Ice Age," *A Symposium on Creation*, VI (Seattle, 1977), p. 4.

⁶ D. W. Patten, *Catastrophism and the Old Testament* (Seattle, 1988), pp. 31, 34 ff., and elsewhere in same work.

the fact that it can only be made to account for the last, that is the Pleistocene, Ice Age. Patten himself was of the belief that the “traditional viewpoint of the ice age holds that there were four of them, separated by warmer interglacial periods...”¹ That might have been true in the 1920s, but in the 50’s, well before Patten stated the above, this was no longer the picture, and Patten should at least have known that. Thanks to the study of sedimentation in deep-sea cores by the Italian-American geologist Cesare Emiliani during that decade, it was discovered that “no fewer than seven complete glacial-interglacial stages” had occurred “during the past 300,000 years.”² About a decade later, further studies of similar cores by Nicholas Shackleton “showed a definite sequence of 19 stages of warming and cooling over the past 700,000 years.”³

It thus becomes evident that if Patten’s cause for the ice ages was to be adopted, an icy astral visitor, as a previous satellite of Mars or Mercury, or some such similar body, would have had to have interacted with Earth and fractured on some nineteen different occasions. It more than boggles the imagination. Besides, as in other cases, seeing as Earth had been much warmer prior to the Pleistocene Ice Age, with the Arctic regions warmer still, any descending ice or snow through the cusps of the geomagnetic field through the atmosphere would have tended to melt to fall as rain much in the same manner that Patten himself postulated for the Biblical Deluge.

THE TIPPE-TOP MODEL

Velikovsky’s scenario received something of a questionable boost in 1978 when Peter Warlow attempted to provide it with a viable mechanism.⁴ “To produce an ‘ice age’ is quite simple,” he wrote. “You merely tilt the Earth a little bit.”⁵

“If, for example, we were to tilt the Earth by about 20° or 30°, so that the rotation pole was moved from its present position to a point in the Davis Strait [just south of Baffin Bay], we would produce the sudden re-advance of the ice sheet over North America...It would alter the ice cover in northern Europe by a smaller amount...It would produce a sudden change of climate in some parts of the world, and not in others. The changes would be both to warmer and to colder states, depending upon the particular location.”⁶

While this, according to Warlow, would have incurred changes in sea-levels, there would not necessarily have been any change in the total quantity of ice at the poles.⁷ This would be because all that would have happened, as in Velikovsky’s case, would have been a mere dis-

¹ *Idem* (with P. A. Patten), *op. cit.*, p. 32.

² W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 131.

³ *Ibid.*, p. 137.

⁴ P. Warlow, “Geomagnetic Reversals?” *Journal of Physics* (October 1978), pp. 2107-2130.

⁵ *Idem*, *The Reversing Earth* (London, 1982), p. 158.

⁶ *Ibid.*, p. 159.

⁷ *Ibid.*

placement of Earth's polar caps. Note, in fact, the similarity of his reasoning to that of Velikovsky as reproduced above:

"A circle drawn [with the pole in the Davis Strait] as centre passes through North America, just below the Great Lakes; it passes through Europe in the region of the British Isles; and it just skirts the modern edge of Asia. As more than one investigator has pointed out, that is almost the extent of the last glaciation."¹

Warlow, of course, had more than just ice ages in mind. Perhaps more than anything, he wanted to account for Velikovsky's additional postulate that Earth had reversed its rotational orientation, with what was east becoming west, more than once in the past.² This would account for various ancient statements from around the world which claim that, in past ages, the Sun had changed direction, rising in the west and setting in the east, on more than one occasion. Velikovsky had of course accounted for this through an inversion of our globe. But while a simple inversion would interchange north with south, east and west would not appear to have reversed *for anyone stationed upon Earth*. As Michael Reade succinctly explained, once one becomes familiar with seeing the Sun rise at a particular point on the horizon, while also used to calling that direction East, one shall not observe anything so very markedly different if the world should turn upside down, for the sun would still appear to rise in much the same place.³

Granted, as Reade also clarified, the rising and setting Sun would be seen to go through other minor changes. Thus, for instance, depending on one's locality on the globe, it would (1) appear to rise twelve hours earlier or twelve hours later than before; (2) its precise direction of rising would be slightly modified; and (3) it would appear to rise at the point on the horizon where, previously, it would have done six months later, or six months earlier. But it would still appear to rise in the *geographical* East, and set in the direction of *geographical* west.⁴

It is therefore to Warlow's credit when he managed to turn the world upside down while also reversing east and west. The complex motions that can account for this were best explained by Warlow through the gyrations inherent in what is popularly known as a tippe-top. As he rightly asserts, the tippe-top's behavior is "quite intriguing."⁵ When first spun, this top spins like any other top, with its handle uppermost. But, in a complex series of fast precessional, nutational, and other rotational responses, it soon inverts itself. It does so, however, in a most peculiar manner. To an external observer, such a top would appear to have turned upside down while its direction of spin remains the same. But to an observer *on the spinning top*—if one can visualize such—the inversion would be accompanied by a reversal of rotation and—yes—on an Earth inverted in such a manner, the Sun *would* appear to rise in

¹ *Ibid.*

² I. Velikovsky, *op. cit.*, pp. 105 ff.

³ M. G. Reade, "Poles Uprooted?" *Society for Interdisciplinary Studies Review* I:1 (January 1976), p. 18.

⁴ *Ibid.*

⁵ P. Warlow, "Geomagnetic Reversals?" (see above), pp. 2108-2109.

the geographical west and set in the geographical east.¹ As in Velikovsky's simpler model, such a tippe-top reversal of Earth would also have generated the side effects—hurricanes, tides, volcanism, etc.—that we have now become quite familiar with in theories of cosmic catastrophes, with ice caps melting and re-freezing in different (displaced) localities.

One other conundrum that Warlow's model sought to explain was the series of past reversals of Earth's geomagnetic field. Various theories had been proposed to account for these reversals. Warlow's solution seemed the simplest. As he disclosed:

"All of the efforts by conventional scientists to explain the magnetic reversals have concentrated on what seems to be the obvious problem, namely to find a way of reversing the field. There is, however, another possibility. That possibility is to leave the field alone and turn the Earth over instead."²

Even so, a reversal of Earth, in tippe-top fashion or otherwise, would not displace Earth's polar caps and, as we have already seen, Warlow himself calls for only a twenty or thirty degree tilt in order to account for the displaced ice caps. This is accommodated by him by claiming that "Earth may not be turned over completely on each occasion" and that the amount of tilt "may be a little less or a little more than 180°, or there may be only a minor tilt of a few degrees."³

Did Warlow accept a close encounter with the planet Venus, as per Velikovsky, to account for the polar cap displacement during the Pleistocene? His research led him to believe that "many large bodies have sailed by in the past."⁴ But, more than that, he offered the following confession:

"Though I have not given consideration to the particular bodies in question, Velikovsky's investigations have led him to conclude that Venus was one of the bodies involved in recent events. Despite the ridicule with which this idea has been greeted, and fully aware that that ridicule may be leveled at me, *I cannot find any reason for not accepting his conclusion.*"⁵

Very much like the Milankovitch theory, but among a lesser group of interested parties, Warlow's model had its ups and downs. Eric Crew was among the first to show how his "initial skepticism developed into firm support for Warlow's views,"⁶ even though, in his

¹ The physics behind this "intriguing" behavior, involving various types of simultaneous rotations and other motions, need not concern us here. Those interested can consult Warlow's works as cited above.

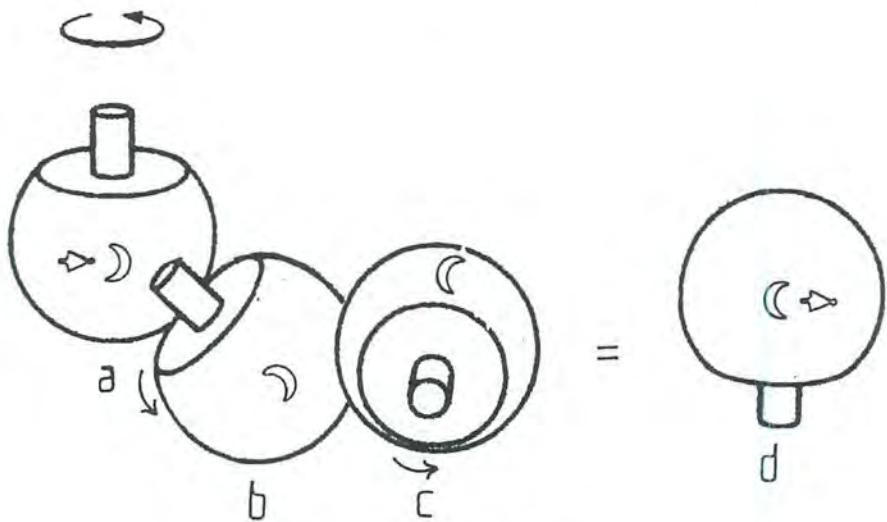
² *Idem*, *The Reversing Earth* (see above), p. 55.

³ *Ibid.*, p. 58.

⁴ *Ibid.*, p. 185.

⁵ *Ibid.* (emphasis added).

⁶ E. Crew, "Slipping Shell and Tippe-Tops," *Society for Interdisciplinary Studies Workshop* 3:2 (October 1980), pp. 39-41.



The workings of a tippe-top.

(5) Initial state with primary spin.

(b & c) Fast precessional secondary rotation leading to inversion.

(d) Continuation of primary spin but with top and bottom inverted, and right and left reversed.

opinion, the terrestrial shell would have inverted without flipping Earth's inner core,¹ a refinement that was also forwarded by T. William Field.² This brings the theory awfully close to Hapgood's shifting crust. But this, too, found its critics.³ Even so, Crew and Field's postulate is not entirely unbelievable when it is remembered that, just prior to 1996, evidence suggested that "the earth's solid inner core spins about two-thirds of a second per day faster than the rest of the planet, adding up to an extra rotation every 400 years."⁴ This might not be though of as much, but it does, at least, indicate that Earth's inner core is not rotationally tied to its outer surface. Earl Milton was another authority who favored Warlow's methodical solution,⁵ as so, too, did John White.⁶

¹ *Idem.*, "Reversals of the Earth?" *S.I.S. Review* IV:2/3 (Winter 1979/80), pp. 62-63; *idem.*, "Further Comments on Shell Slipping," *Society for Interdisciplinary Studies Review* 3:3 (January 1981), pp. 35-37; *idem.*, "Slipping Shell—An Adjustment," *Society for Interdisciplinary Studies Workshop* 3:4 (April 1981), p. 25.

² T. W. Field, "Evidence of an Inversion Event?" *AEON* II:1 (June 1989), pp. 6-8; *idem.*, "Some Thoughts on Inversion Calculations," *Chronology and Catastrophism Review* XI (1989), pp. 21 ff.; *idem.*, "Further Thoughts on Tippe Top Inversion," in *ibid.* XII (1990), pp. 47-48.

³ D. A. Slade, "Eric Crew and the Tippe-Top," *Society for Interdisciplinary Studies Workshop* 4:3 (December 1981), pp. 34-36, but see also the appended reply by Eric Crew, pp. 36-37; see also C. L. Ellenberger, "Bulge-bilge, Inertia and Torque," *Society for Interdisciplinair Studies Workshop* 4:4 (March 1982), pp. 32-34.

⁴ C. Kulyk, "Spinning Heads: Our Planet Within a Planet," *Equinox* (December 1996), p. 14.

⁵ E. R. Milton, "Electric Stars in a Gravity-Less Electrified Cosmos," *S.I.S. Review* V:1 (1980/81), p. 7.

⁶ J. White, "The Day the Earth Flipped End-Over-End," *The Province* (June 9, 1980), p. C1; *idem.*, *Pole Shift* (N. Y., 1980), pp. 135 ff., 385.

Strange as it may sound, there were some supporters of Velikovsky who, rather than accept the tippe-top model as a validation of their mentor's cosmic theory, ended up criticizing it.¹

Initially, Leroy Ellenberger, too, found much to commend in the tippe-top model,² but he was soon swayed by the critique of Victor Slabinski,³ to say nothing by that of Lynn Rose.⁴ Neither was Ellenberger swayed by Crew's attempt to save the tippe-top model by refining it through his shell-slipping modification.⁵

It was, however, Slabinski's detailed critique which actually dealt the death blow to Warlow's model. As Slabinski showed, the torque required to flip over the world was understated by Warlow.⁶ As his own calculations indicated, the interacting body with Earth would have needed "a mass of 68 Jupiters." As he concluded: "We expect that such an interaction would be totally catastrophic."⁷

Warlow did his best to defend his theory against these criticisms,⁸ as so, also, did some of his supporters.⁹ Others, like Nigel Henbest, voiced their objections without having really

¹ Those interested can consult the following: L. E. Rose, "Senmut's Ceiling and the Earth as Tippe Top," *KRONOS* VII:2 (Winter 1982), p. 86; D. Cardona, "Ejections, Resonances, and Inversions," *KRONOS* X:2 (Winter 1985), p. 66; P. Warlow, "Return to the Tippe Top," *Chronology & Catastrophism Review* IX (1987), pp. 3 ff.

² C. L. Ellenberger, "Heretics, Dogmatists and Science's reception of New Ideas," *KRONOS* V:4 (Summer 1980), pp. 58, 68; *idem*, "'Reversals of the Earth?'" *S.I.S. Review* IV:2/3 (Winter 1979/80), p. 62.

³ See here Ellenberger's editorial footnote to I. Velikovsky, "The Destruction of Sodom and Gomorrah," *KRONOS* VI:4 (Summer 1981), p. 51; *idem*, "Still Facing Many Problems," Part II, *KRONOS* X:3 (Summer 1985), pp. 5-9; *idem*, "A Twice-Told Tale of Inertia," in *ibid.*, pp. 111-112; *idem*, "Wild Motions, Angular Momentum and Other Problems," *S.I.S. Review* VII A (1982/3), p. 28.

⁴ *Idem*, "Senmut's Ceiling and the Earth as Tippe Top," *KRONOS* VII:2 (Winter 1982), pp. 86-88.

⁵ *Ibid.*, p. 88.

⁶ V. J. Slabinski, "A Dynamical Objection to the Inversion of the Earth on its Spin Axis," *Journal of Physics* 14:9 (September 1981), pp. 2503-2507; *idem*, "A Dynamical Objection to Warlow's Inversion of the Earth," *S.I.S. Review* V:2 (1980/81), pp. 54-56.

⁷ *Idem*, "Senmut's Ceiling and the Earth as Tippe Top," *KRONOS* VII:2 (Winter 1982), pp. 94-96; see here also, F. B. Jueneman, "Atlas tottered..." *Industrial Research and Development* (December 1980), p. 21.

⁸ P. Warlow, "Reversals of the Earth?" *S.I.S. Review* IV:2/3 (Winter 1979/80), pp. 63-67; *idem*, "Return to the Tippe Top," *Chronology & Catastrophism Review* IX (1987), pp. 2 ff.

⁹ C. Marx, "Troubled Torques," *Society for Interdisciplinary Studies Workshop* 4:3 (December 1981), pp. 20-22; E. Crew, "Pole Flipping," *Society for Interdisciplinary Studies Workshop* 4:4 (March 1982), p. 32; *idem*, "Answer to Slabinski," in *ibid.*, 4:4 (March 1982), pp. 34-35; R. M. Hendrickson, Jr., D. Dunthorn, & C. L. Ellenberger, "Much Ado About Tippe Top," *KRONOS* VIII:3 (Spring 1983), pp. 84-89; D. Salkeld, "The Velikovskian Challenge Today," *Chronology & Catastrophism Workshop* (1987:2), p. 30, but see also, M. Reade & D. Salkeld, "Energetics of Tippe-Top Inversions," in *ibid.* (1988:1), pp. 23-24; C. L. Ellenberger & D. Salkeld, in the "Forum" section, in *ibid.* (1988:2), pp. 18-21; E. W. Crew, "Response to 1988:1 Workshop," in *ibid.*, pp. 37-38; C. L. Ellenberger, "Tilt at Salkeld," *Chronology & Catastrophism Workshop* (1989:1), pp. 37-38; D. Salkeld, "Objections Overruled—A Reappraisal of Earth Inversion Dynamics," *Chronology and Catastrophism Review* XI (1989), pp. 29 ff.; *idem*, "Ellenberger in Chaos?" *Chronology & Catastrophism Workshop* (1989:2), pp. 33-34; *idem*, "More than a Day's Work," in *ibid.* (1990:2), pp. 42-43; L. Ellenberger, "The Impossible Tippe Top Earth," *AEON* II:5 (February 1992), pp. 83-86; D. Salkeld, "Reply to Ellenberger," in *ibid.*, pp. 86-89; L. Ellenberger, "Rejoinder to Salkeld," in *ibid.*, pp. 89-90.

understood what was at issue.¹ But, try as he might, Warlow could not rid his model of Slabinski's main impediment concerning the required torque. Even Michael Reade, James McCanney, Moe Mandelkehr, and Peter James, none of whom were originally opposed to Velikovskian scenarios, found reason to concur with Slabinski's calculations and/or to point out additional flaws.²

When, nine years later, Warlow returned to the tippe-top in the first part of a planned two-part paper, he claimed that Slabinski's calculation is a hypothetical, rather than a practical, one—as if his own theory was anything but. There he promised that, in part two, Slabinski's own calculation will be shown to be overestimated by a factor “in the order of tens of millions.”³ Unfortunately, as of this writing, the promised second part of the paper has not yet seen the light of day.

Needless to say, as Warlow himself noted, the dynamic objections raised against his hypothesis applies equally well to that of Velikovsky regardless of the manner in which Earth might have inverted itself.⁴ He, however, misunderstood me when he claimed that, while objecting to his theory, I continue “to favor Velikovsky’s scenario, looking (or hoping) for some alternative to the tippe-top to save the day.” To which he added: “Unfortunately, Cardona’s is a vain hope, and any search he makes will be fruitless.”⁵

“Logically, then [he continued], Cardona’s response is untenable—but it is nevertheless an understandable one. It is based on his conviction that the historical record contains too much information and detailed consistent accounts for a Velikovsky-type scenario not to be true...In this respect, I sympathise with Cardona, but a situation in which one simply hopes for something to turn up and provide salvation as if by magic just cannot be accepted. The Slabinski spectre must be laid without resorting to miracles.”⁶

Had Warlow been more familiar with my published works, he would have realized that I had long before abandoned Velikovsky’s scenario of near-colliding worlds. And while, yes, I did continue to believe that east and west had more than once changed places in the past, I was in no way looking for magic and/or miracles to accomplish the feat. Warlow might have felt justified in castigating me because I did not offer an alternative to his tippe-top model. The lack of an alternative, however, does not invalidate Slabinski’s dynamic objection.

What can we add to all this?

¹ See here “Pole Shifts Dismissed,” *Society for Interdisciplinary Studies Workshop* 5:1 (1982), p. 24.

² M. G. Reade, “An Earth Inversion Model,” *S.I.S. Review* V:3 (1980/81), pp. 96-97; J. M. McCanney, “The Nature and Origin of Comets and the Evolution of Celestial Bodies,” Part III, *KRONOS* X:2 (Winter 1985), p. 53; M. M. Mandelkehr, “Tippe-Top Earth Inversion?—If and When?” *Chronology & Catastrophism Workshop* (1988:1), p. 40; P. James & N. Thorpe, *Ancient Mysteries* (N. Y., 2001), pp. 145-147.

³ P. Warlow, “Return to the Tippe Top,” *Chronology & Catastrophism Review* IX (1987), p. 12.

⁴ *Ibid.*, p. 11.

⁵ *Ibid.*

⁶ *Ibid.*

Let us first return to Earth's geomagnetic reversals which Warlow attributed to Earth's inversion. As Trevor Palmer correctly proclaimed, "the sheer frequency of geomagnetic reversals would seem to rule this out as a general mechanism."¹ So, also, Peter James and Nick Thorpe who rightfully proclaimed that:

"Geologists believe that there have been some 120 geomagnetic reversals since the age of the dinosaurs, 65 million years ago. If Warlow's explanation of such events is correct, then the Earth would have to have been toppled over so many times by close encounters with Jupiter-size bodies. One such encounter seems improbable enough, so the idea that there were as many as 120 seems vanishingly small, even given the huge time scale involved."²

Besides, the Sun, too, is known to reverse its magnetic field during each eleven-year cycle,³ *but it does so without inverting itself.*

Besides, the reversing of Earth's geomagnetic field is not tied to the cycle of ice ages anymore than it is tied to mass extinctions,⁴ another fallacious correlation favored by catastrophists. This is indicated by the fact that various magnetic reversals fail to coincide with the dates of past ice ages, and by the additional fact that there are more recorded magnetic reversals than there are ice ages. That one particular reversal, known as the Gothenburg flip, happens to coincide roughly with the Pleistocene epoch, as noted by D. S. Allan and J. B. Delair,⁵ whom we shall meet again later, does not tie magnetic reversals to ice ages. On the other hand, even if Earth's reversing field cannot be coupled to terrestrial inversions, of itself it does not invalidate the possibility of a tippe-top-like inversion.

That planets can tip over due to external forces is actually admitted by mainstream astronomers. As Warlow himself and his supporters have pointed out, this is the manner in which the planet Uranus is believed to have been tilted. As proposed in 1966 by the Soviet scientist V. S. Safronov, Uranus was flipped on its side to its present 98 degree-tilt by the direct impact of a sizeable body during the planet's coagulative period.⁶ But this, again, had been a one-time event. Worse than that, with Earth of a much less massive size than Uranus, a direct hit by an impactor massive enough to cause a complete terrestrial inversion would have probably resulted in detrimental consequences much more severe than either Velikovsky or Warlow envisioned. Besides, as Warlow himself admits, a terrestrial inversion is not necessary for the relocation of Earth's polar caps, where a mere twenty or thirty degree tilt would be sufficient.

Posited terrestrial axial shifts have not remained outside the domain of science and, by the turn of the century, such theories were still being aired. Thus, in a study of underwater

¹ T. Palmer, "The Erratic Descent of Man," *Chronology and Catastrophism Review* XII (1990), p. 21.

² P. James & N. Thorpe, *op. cit.*, p. 146.

³ B. A. Smith, *et al.*, "Voyager 2 in the Uranian System: Imaging Science Results," *Science* 233 (1986), p. 58.

⁴ S. Simpson, "Headed South?" *Scientific American* (November 2002), p. 24.

⁵ D. S. Allan & J. B. Delair, *Cataclysm!* (Santa Fe, 1997), pp. 182-183, 267.

⁶ V. S. Safronov, "Sizes of the Largest Bodies Falling Onto the Planets During Their Formation," *Soviet Astronomy—AJ* 9:6 (May-June 1966), p. 987.

volcanoes, scientists came upon evidence which drew them to conclude that “Earth may have wobbled like an out-of-balance ball...relocating the poles and shifting the planet’s surface.” As William Sager, then hailing from Texas A&M University, reported: “What it appears that happened, was a rapid shift” followed by a “slow recovery to where things are today.”¹

This event, however, was dated to 84 million years ago.² No mechanism for Earth’s wobbling was forwarded. And no such correlation was discovered to account for the Pleistocene glaciation. And then, even if such wobbling was to be theorized as having been triggered by the close encounter with a planet-sized body of multi-Jupiter mass, one still has to ponder the probability of this having occurred time and again to account for nineteen separate ice ages, or nineteen separate relocations of the terrestrial polar caps. It does boggle the imagination. This is why, together with other reasons which we need not go into here, I had formerly suggested that the cause of Earth’s inversion(s), *whether in a tippe-top fashion or not*, should be sought in other means that the close fly-bys of planets³—and that alone should have told Warlow that I do not subscribe to Velikovsky’s scenario.

WATER VERSUS ICE

When it comes to glacial signatures in general, Velikovsky was of the belief that most of these were caused by surging floods of water. Prominent among these signatures are the erratic boulders which are found littering immense areas of Earth’s northern regions. These are rocks which can vary in size from boulders to village-size slabs weighing several tons that have been torn from one locality and transported to be deposited miles away in another. Erratic boulders are recognizable through their mineral composition which is different from that of the formation upon which they are discovered. In almost all cases, their mineral composition can inform the geologist from which locality they had been dislodged. Originally believed to have been torn and transported by immense waves of translation, these erratics were eventually recognized as having been dislodged and transported by the ice age glaciers. Velikovsky, however, believed that the original assessment had been the correct one and continued to believe that these boulders had indeed been transported by the recurrent floods triggered by his series of cosmic catastrophes.⁴

Moraines, also known as drift and/or till, consist of conglomerates of similar, but smaller boulders and other rock fragments mixed with sand and clay which glaciers are known to push to the sides and in front of them. When the glaciers melt, the moraines are left in place as evidence of a once-advancing ice sheet. The ones pushed to the front remain in the form of irregular arcs as termination marks, and are therefore known as terminal moraines. Following the 1845 disclosures of R. I. Murchison, Velikovsky was of the belief that this detritus, too, was left behind by the same, or similar, surging floods of water, probably from erupting seas triggered by one of his brand of cosmic catastrophes.⁵

¹ As reported in a Washington (AP) service bulletin, January 1, 2000.

² *Ibid.*

³ D. Cardona, “Ejections, Resonances, and Inversions,” *KRONOS X:2* (Winter 1985), p. 67

⁴ I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), pp. 10-12, 38 ff.

⁵ *Ibid.*, pp. 38 ff.

Seeing as these and similar arguments have more recently been reiterated with stronger arguments by D. S. Allan and J. B. Delair, we shall concentrate on their efforts since any objections to their work would apply just as equally to Velikovsky's. We stress this here because, unlike Velikovsky, Allan and Delair were working within the confines of their own disciplines since the former is a science historian specializing in paleogeography and the latter a geologist. While, normally, we would not care from what source our data is collated, giving greater weight to the strength of evidence than to whomsoever stands behind it, others may find the objections voiced by scholars within their own disciplines of greater validity than those voiced by scholars, like Velikovsky, outside their own fields. Even so, it must not be assumed that the theory as propounded by Allan and Delair has been accepted by orthodox paleogeographers and/or geologists. In the main, they are as iconoclastic as Velikovsky himself—in fact, as we shall soon see, perhaps even more so.

Right off the bat, in the “Introduction” to their work, Allan and Delair proclaim that:

“On the whole, it is sensible to support or retain a theory only if it ‘works’, provided that, in drawing diverse fragments of knowledge into defensible patterns, it enables useful predictions to be made about the shape of further discoveries. Conventional glacial theory, however, fails to meet this criterion.”¹

They then ask: “Did ice in another guise cause the supposed glacial phenomena, distribute the ‘drift’ and disperse the ‘erratics’?”² Their answer to this question is that “something other than ice, operating in a worldwide capacity, was responsible for the deposition of ‘drift’ and the creation of other supposedly Ice Age phenomena.”³

As they themselves proclaim, Allan and Delair do not disavow the occurrence of the Pleistocene Ice Age. Like the present writer, they point to the shaky ground upon which the glacial theory has been reconstructed. To which they add: “That is not to assert that the Ice Age did not exist, but does indicate that it occurred in a form and by a means not properly accommodated by conventional dogma.⁴ With this we wholeheartedly agree.

But also, as in Velikovsky's case, most of the signatures attributed to the Pleistocene glaciation are, by Allan and Delair, blamed on the surging waters of immense floods. Like Velikovsky, they claim that terrestrial upheavals—earthquakes, hurricanes, volcanic eruptions, *etcetera*—occurred simultaneously with these floods. And, like Velikovsky before them, they attribute all these events to a cosmic catastrophe. But here is where they part company with Velikovsky and, to be sure, also with Peter Warlow who followed him, since they offered an entirely different cosmic cause. Even so, although the actual scenario of this postulated cosmic catastrophe does not concern us here, it *does* bear a superficial resemblance to that proposed by Velikovsky and even to that of Donald Patten. In short, according to Allan and De-

¹ D. S. Allan & J. B. Delair, *Cataclysm!* (Santa Fe, 1997), pp. x-xi. (NOTE: This work was originally published in England in 1995 under the title *When the Earth Nearly Died*.)

² *Ibid.*, p. 37.

³ *Ibid.*, p. 44.

⁴ *Ibid.*, p. 25.

lair, a body of planetary size entered the Solar System from the reaches of outer space, interacted with the solar planets, one of which was entirely destroyed, with its fragments, falling in all directions, impacting on the solar family of planets, including Earth,¹ while the visitor from outer space finally fell into the Sun.²

AN EXPROPRIATED SCENARIO

Allan and Delair claimed to have based this cosmic scenario on the evidence of Mesopotamian tablets, primarily the Assyro-Babylonian Creation Epic—that is the *Enuma Elish*—and Greek mythology. In actual fact they expropriated the cosmic catastrophe in all its details previously proposed by Zecharia Sitchin in 1976.³ I say expropriated not because they utilized the catastrophe developed by Sitchin, which anyone has a right to do, but because they did so without acknowledging him, and thus attempted to present his reconstruction as their own. This unethical act even forced the publisher of the American edition of their book to include an acknowledgment to that effect which, in part, reads:

“Bear & Co., Inc. regrets that Part IV of *Cataclysm!* by D. S. Allan and J. B. Delair contains substantial material covered in depth by Zecharia Sitchin, principally in his prior books *The 12th Planet* and *The Wars of Gods and Men*, without Mr. Sitchin’s permission or acknowledgement of Mr. Sitchin’s work.

“Any misuse of Mr. Sitchin’s material or any failure to properly credit Mr. Sitchin, who retains fully all rights to such material, both text and illustrations, is sincerely regretted.”⁴

I would not even have mentioned this appropriation were it not for the additional fact that, despite the following it generated, Sitchin’s own work is nothing but a flight of fancy. More than the cosmic catastrophe he reconstructed, his work deals with the visitation of alien beings who came to Earth and used cloning to create the human race in their own image. These aliens then interbred with the primitive humans they had created in order to generate slave labor for their gold mines. The interloping planet and the havoc it caused among the planets of the Solar System, including Earth, forms only part, although a major one, in Sitchin’s overall scheme.

Much as we ourselves have done in our previous work in this series,⁵ Allan and Delair present various ancient deities as representations of the planets. But while we have supplied ample evidence, including the ancients’ own testimony, for our identifications, Allan and Delair present none. In their work they claim that “Ea and Anu were the Sumerian names for

¹ *Ibid.*, pp. 218 ff.

² *Ibid.*, p. 231.

³ Z. Sitchin, *The 12th Planet* (N. Y., 1978 edition), pp. 173-256.

⁴ Publisher’s note in D. S. Allan & J. B. Delair, *op. cit.*, p. ii.

⁵ D. Cardona, *God Star* (Victoria, British Columbia, 2006), *in toto*.

the planets respectively known today as Neptune and Uranus.”¹ Where, in ancient texts, are these identifications established? Or in which mythological treatise are they proposed? Had they done any research on the subject they would have come to the realization that both Anu (also An) and Ea were in reality personifications of the same planet Saturn.² It is not that they are *bound* to accept these identifications, but, in view of the evidence in their favor, they should at least have considered them and, if disagreeing with them, they should then have offered reasons for their disagreement.

Worse still, there is nothing in the mythology of any race or ancient nation that contains as much as a hint concerning the planets Neptune and Uranus. How could there be when Neptune is not even visible to the naked eye? True, as Frederic Jueneman pointed out, Uranus, on the other hand, is optically visible to those of “excellent acuity of vision” given “a limpid sky unpolluted by ambient light.”³ But, as Tania ta Maria replied, “visibility does not necessarily make for recognition, and the fact remains that Uranus was unrecognized, and therefore undocumented, by ancient observers.”⁴

Needless to say, Allan and Delair derived these identifications, and various others,⁵ from Sitchin,⁶ ignoring the fact that Sitchin himself offers no evidence for the identifications in a work that is totally devoid of references. The reader is thus presented with nothing more than Sitchin’s unverified statements, leaving one with nothing more than the author’s own word.

Serious scholars who are familiar with Sitchin’s work and who then read Allan and Delair are therefore bound to dismiss their work with his. It might have been this fear that moved Allan and Delair to omit any reference to Sitchin, although how they expected to avert detection remains beyond me. Even so, having said that, I wish to be fair to these two writers because, disregarding the specific catastrophe they misappropriated, the objections they offered against the Ice Age theory should still be considered. Granted that many of these objections had already been raised by others before them, including Velikovsky and Warlow, they were, in my opinion, somewhat more persuasive in their arguments. More than that, they *did* present some damning evidence which really needs to be re-considered.

Let it, however, be understood that I do not disavow cosmic catastrophism, the signs of which litter the geologic strata of all ages. It is simply that I, personally, do not adhere to Allan and Delair’s particular scenario any more than I adhere to the previous one of Velikovsky.

DIASTROPHISM

Allan and Delair draw attention to the gigantic cracks and fissures which crisscross Earth’s surface. Some of these topographical features have been attributed to the action of moving ice. However, as the authors in question rightly noted: “Detailed field studies of the

¹ D. S. Allan & J. B. Delair, *op. cit.*, p. 217

² For Anu as Saturn see D. Cardona, *op. cit.*, pp. 128, 167-168, 224-225, 229; for Ea as the same planet see *Ibid.*, pp. 213, 225.

³ F. B. Jueneman, “Mars and Uranus,” *AEON* VI:3 (November 2002), p. 5.

⁴ T. ta Maria, *ibid.*

⁵ D. S. Allan & J. B. delair, *op. cit.*, p. 219.

⁶ Z. Sitchin, *op. cit.*, pp. 217, 221, 235, and elsewhere in same work.

well-developed fiord systems of Greenland, the Hebrides and Scandinavia have tended to favor quite another explanation, namely that they had a tectonic origin, are really gigantic cracks in the Earth's crust, occupied and partially modified by glaciers *only at a later date.*¹ And with this, to be sure, we also agree.

As these authors correctly observed, fiords are linked to a complex system of crustal fractures, which include submarine canyons, deep-sea trenches, and rift valleys which encircle the entire globe. "All seem to be connected with a huge crack which traverses the Earth's crust for over 40,000 miles (64,000 km) on a long meandering course." The walls of most of these features are "sharp and angular." Moreover, general agreement exists "that this fracturing occurred on a planetary scale at about the same time."²

These fissures have by some been dated as pre-Pleistocene. But, as Allan and Delair noted, the Ganetic Trough could only have originated with the elevation of the Himalayas and the Tibetan plateau. Considered a Pleistocene feature through which the river Ganges presently flows, "the trough itself is largely choked by Pleistocene debris of enormous thickness." And yet, the global uplift of land, of which the Himalayas and the Tibetan Plateau are merely one facet, are generally proclaimed to have occurred *at the end* of the Pleistocene Epoch. As Allan and Delair themselves note, "evidence clearly shows that the end of the Pleistocene epoch...was characterised by gigantic and violent crustal convulsions which, viewed globally, were nothing short of cataclysmic."³

To be fair, Allan and Delair stress that this "is not to imply that the Alps or Himalayas, for instance, attained their present form at a single catastrophic stroke, for reliable evidence indicates that the original upthrust of these and other ranges first began millions of years earlier, in some cases as far back as the Mesozoic Era..."⁴ This is then clarified on a following page where they then claim that:

"The Alps attained their present height suddenly and violently in times so recent that their upthrust actually post-dated the era normally assigned to the Ice Age itself. Thus the Alps, as we know them, hardly existed when the Ice Age is supposed to have occurred. They were merely a 'chain of low hills'.⁵"

Also: "Before [the Pleistocene], as demonstrated by numerous geological facts and observations, mountains were mostly of very modest elevation."⁶ To which they add:

"Varying amounts of increasing elevation occurred sporadically down to the close of the Pleistocene. We do urge, however, that *a high percentage of today's major ranges rose to their present heights only at the end of, or after, Pleistocene times.*"¹

¹ D. S. Allan & J. B. Delair, *op. cit.*, p. 35 (emphasis as given).

² *Ibid.*

³ *Ibid.*, p. 37.

⁴ *Ibid.*, p. 25.

⁵ *Ibid.*, p. 42.

⁶ *Ibid.*, p. 25.

As they continue: "Special note should be taken of the repeated datings of these crustal derangements by acknowledged authorities: 'late Pleistocene,' 'terminal Pleistocene,' 'end of the ice age,' 'post-glacial,' and so on."²

Of great importance is the study conducted by D. M. Wadia who proved "the extreme youth of Himalayan orogeny," in which the older Himalayan rocks were uplifted and shoved on top of Pleistocene gravel and alluvia.³ As Allan and Delair noted, "this over-thrusting of older upon newer formations was attended by the dragging-up by more than 5,000 ft (1,500m) of marine beds containing Paleolithic remains in Kashmir, and [therefore must have] occurred during the age of humanity."⁴

We could of course add much more evidence concerning the recent uplift of other mountain ranges, but enough has been said for the purpose of this study. I shall here mention only one additional item for the sake of skeptics. During the California earthquake of October, 1987, the low hills outside the town of Whittier, fifteen miles from Los Angeles, grew in height by almost two inches.⁵ And if hills can grow by that much through the action of a relatively minor earthquake, one can only imagine the extent of uplift that could take place in planet-shattering catastrophes.

I might as well add here, even if only briefly, that had Earth's major mountain ranges been uplifted *after* the Pleistocene Ice Age, mankind should have retained a memory, no matter how dim, of the event. Such a catastrophic episode could not have escaped man's notice and, having remembered and passed on so many other occurrences from his primitive past, he would not have suppressed the information concerning the break-up and elevation of vast areas within the visual limits of his environment. Do we find anything of the kind reported by our long past ancestors?

The Eskimos of the Bering Straits unequivocally proclaim that "in the days of the first people on the earth plain, there were no mountains far or near."⁶ So, similarly with the Amerinds of Washington State who similarly proclaim that: "When the world was very young, the land was flat where the Cascades now rise."⁷ A similar myth from the same states, referring to the area around Lake Chelan, likewise declares that: "Once there were no mountains or lakes in this part of the country, only a grassy prairie with abundant game." The raising of the mountains is here explained as having been the work of the Great Spirit who shook Earth when "a huge cloud descended and hid the land."⁸

"When [the cloud] cleared, everything was changed. Where there had been a plain there was now a range of lofty mountains; deep canyons marked the places where the

¹ *Ibid.* (emphasis added).

² *Ibid.*, p. 37; see also pp. 67-68.

³ *Ibid.*, p. 26, but see also p. 27.

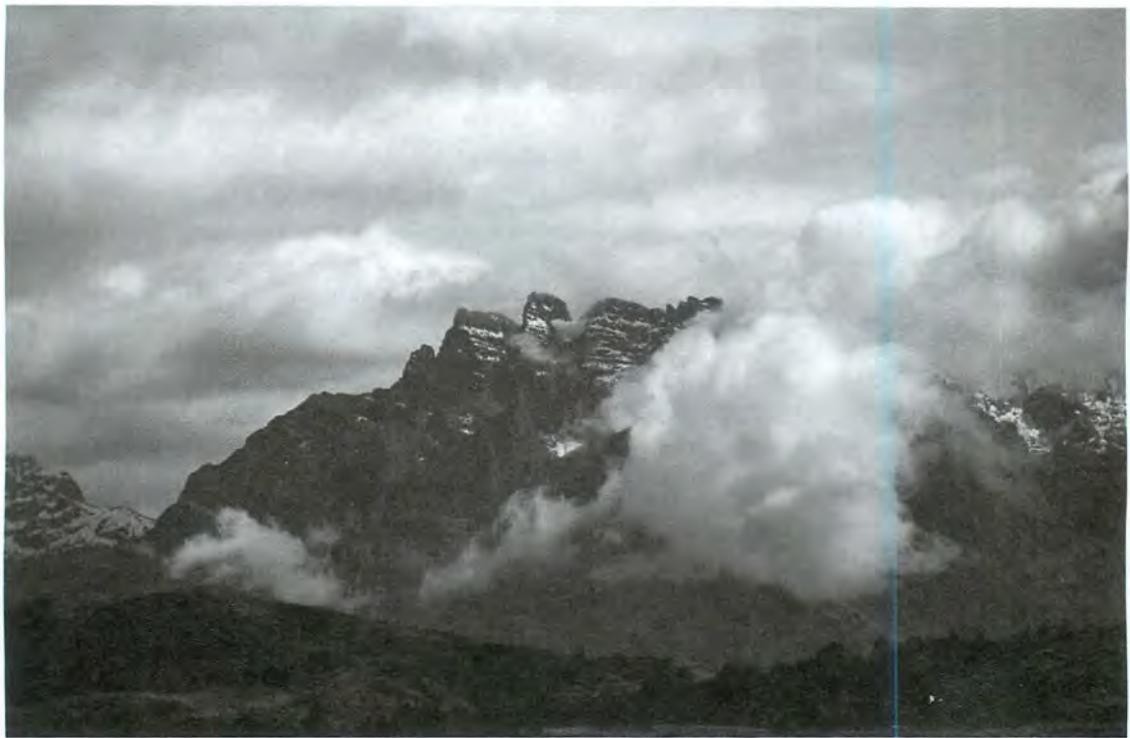
⁴ *Ibid.* (emphasis added); see here especially the source quoted by the authors: A. Heim & A. Gansser, *The Throne of the Gods: An Account of the First Expedition to the Himalayas* (N. Y., 1939), p. 218.

⁵ M. B. Roman, "Finding Fault," *Discover* (August 1988), p. 57.

⁶ R. Van Over, *Sun Songs: Creation Myths From Around the World* (N. Y., 1980), p. 76.

⁷ D. B. Vitaliano, *Legends of the Earth* (Bloomington, 1973), p. 53.

⁸ *Ibid.*, p. 54.



Could the sudden uplifting of such mountains have been witnessed by early man?

Shown above: The Peruvian Andes.

(Photograph by the author.)

rocks and dirt had been removed to make the mountains."¹

A Nisqually legend then tells that "Mount Rainier moved to the east side of Puget Sound to escape crowding when all the mountains on the Olympic Peninsula side... grew too fast."²

It is not necessarily that the ancestors of the Amerinds could remember the uplift of this or that particular mountain range—although that, too, is possible. It is, rather, that they retained a memory of the general elevation of land which later tradition shifted to the particular locale in which their descendants finally settled. Such localization, after all, comprise one of the hallmarks of myths and legends.

STRIATIONS AND ERRATIC BOULDERS

The above leads us to suspect that the debris which chokes the Ganetic Trough was probably eroded from Pleistocene bedrock and deposited *after* the end of that epoch. As these

¹ *Ibid.*

² *Ibid.*, p. 126.



Mount Rainier.

Is it possible that the ancestors of the Nisqually actually witnessed the lateral shifting
of this mountain?

(Photograph by the author.)

authors conclude, "if the ice-sheets of orthodoxy really existed, then the ice must have covered regions which were either in the process of being enormously upheaved, displaced, vertically faulted and fissured, or subsided to remarkable depths."¹

Presented as an objection to the workings of glacial ice, we actually accept this merely as a verification that the land was uplifted, and the fiords were formed, *at the end of the Pleistocene, after the last Ice Age had come to an end.*

Thus, when it comes to erratic boulders and the striations left behind by the scouring ice, Allan and Delair note that, at many sites, "the striations occur only on the summits of high hills or only on the northern or north-western slopes of mountains." As they conclude: "Such evidence suggests that whatever produced them proceeded from a general northern or north-western direction and totally ignored pre-existing topography."² As they themselves noted, "ice cannot ascend hills."³

¹ D. S. Allan & J. B. Delair, *op. cit.*, p. 37.

² *Ibid.*, p. 9.

³ *Ibid.*, p. 45.

Well that depends. If a glacier is thicker, that is higher, than an obstructing hill, it would not only "crawl" up its slope, it would even top it. Such an event, however, would leave striations on both slopes of such a hill. But since, as we have seen, the authors in question themselves noted that the upheaval of land which raised most of the world's mountains occurred at the end of the Pleistocene, I find the above somewhat strange when presented as an objection to glacial mechanical action. Should they not have realized that, when these striations were gouged out, the land bearing their signs would still have been relatively flat? The striations would then have been raised when the land itself was uplifted. This would also explain why these striations appear only on the northern or north-western faces of high hills and mountains, since the southern faces would have previously lain underground. Hills and mountains are not always raised as blisters on the surface of the land. While some are due to folding of the crust, many are owe their origin to faults which shear the land which is then uplifted where only one side of the elevated land would have been part of the original level ground.

This also applies to those erratic boulders which now "perch precariously in long lines along mountain crests, or lie singly upon the very summits of lofty eminences."¹ Originally, these erratics would have been deposited on relatively level ground. They would then have been raised to their lofty perches when the land was uplifted long after the Ice Age had come to an end. So, likewise, with other drift material which is now found on highland summits. This would then explain "the well-established fact that many glaciated hills and mountains in the northern hemisphere are scored and striated from top to bottom on their northern sides only." In keeping with their acceptance that the land was uplifted at the end of the Pleistocene, it does not do for them to remark that, according to orthodoxy, the ice-sheets would have had to have "glaciated the northern and north-western faces of these eminences as they slowly crawled up them but failed to glaciate the southern slopes as they presumably accelerated down them..."² But, given that the land over which these glaciers "crawled" was relatively flat, and that this land was raised to its present level only after the Ice Age had come to an end, the conundrum disappears.

Besides, were we to adopt the hypothesis that these erratics were actually transported by the wild surging of a flood,³ the theory would still be burdened with the same conundrum.

Let us say that a tremendous surge of water could have transported huge slabs of rock up mountain sides. Since some of these erratics are found on the very summits of hills and mountains, it would necessarily mean that the upwelling flood would have topped the crests of these elevations. Why, then, did they not leave some of their detritus on the opposite southern slopes?

Allan and Delair also note the occurrence of erratics and striations in areas "far beyond the limits of the most extensively conceived ice-sheets." Among these they mention erratic boulders in the Sahara Desert, on the Mongolian plains, and in sub-tropical Uruguay. But

¹ *Ibid.*, p. 9.

² *Ibid.*, p. 45.

³ And see here especially, *ibid.*, pp. 306, 308.



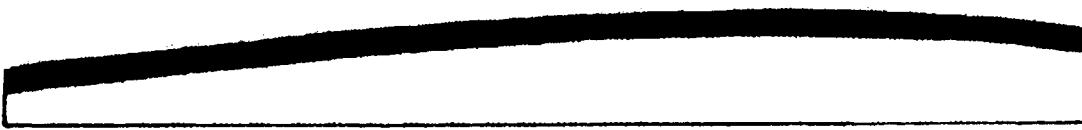
Glacial striations at Horseshoe Bay, Beacon Hill Park, Victoria, British Columbia.
(Photograph by the author.)

then they themselves inform us that *some* of these erratics and striations have already been recognized as having been caused by drifting sand, mud-slides, volcanic outpourings, and other erosive agents including wind. They then argue that "when it is discovered that it is possible to produce rock striae like those usually attributed to ice action...by such dissimilar agents...we are obliged to seriously question the alleged glacial origin of striae generally, particularly when, as in numerous instances, they, too, occur far outside the furthest traceable limits of supposed bygone ice-sheets."¹ No one has, however, ever claimed that erratic boulders and striations can only be produced by moving ice.² Besides, the effects of drifting sand, mud slides, volcanic outpourings, wind, and other agents of erosion are readily identified, as so, whether they wish to believe it or not, are those of glacial ice.

But here, again, they seem to have fallen into the same trap Velikovsky had fallen years earlier when he pointed out what to him was the wrong direction in which past glaciers would have had to have traveled to leave behind the traces they did. They seem to have

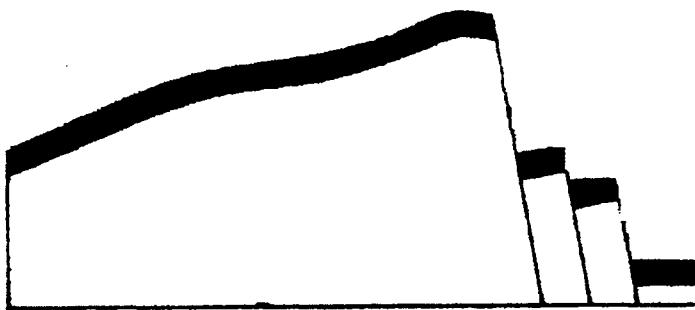
¹ *Ibid.*, pp. 45-46.

² See here, for example, E. O. Hovey, "Striations and U-shaped Valleys Produced by Other than Glacial Action," *Bulletin of the Geological Society of America* 20 (1909), pp. 409-416.



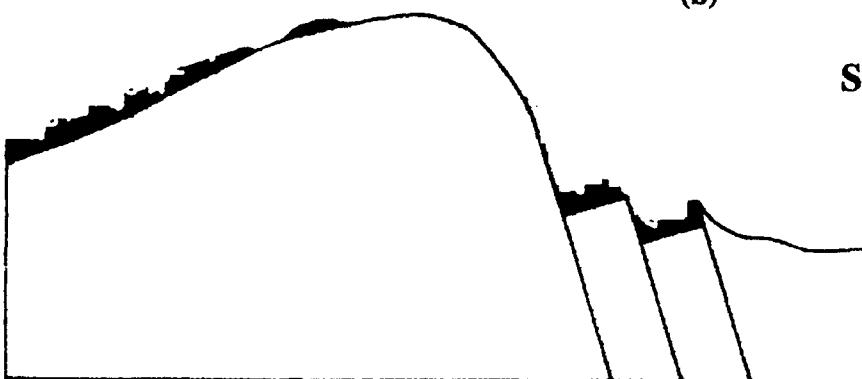
(a)

N



(b)

S



(c)

Formation of a mountain through faulting.

Note that surface material—erratics, till, detritus, etc.—including striations, marked in solid Black, on relatively level land as in (a) ends up on one face of raised mountain, but Not on opposing face as in (b) and finally eroded as in (c)

forgotten that the glacial theory vouches for more than one ice age, and that in previous ice ages the continents had been bunched together in an entirely different configuration. So that, yes, glacial signatures *have* been discovered in that African region which today is covered by the mostly barren wastes of the Sahara desert.¹ Among these are glacial striations in the

¹ W. Chorlton, *op. cit.*, pp. 142 ff.

bedrock of southern Algeria where, in some cases, they stretch for hundreds of miles;¹ erratic boulders, some of which still bear glacial scratch marks;² and eskers—long but relatively gravel ridges—one of which snakes along the desert for thirty miles.³

In utilizing the same data, Flavio Barbiero has more recently again revived that old chestnut, polar shift, to account for these glacial signatures. As he argued: “The marks left by thick ice in Africa and India...are compelling evidence that the poles have wandered from what is today’s equator to the actual [that is present] poles.”⁴

What these investigators seem to forget is that the ice age which gripped the present area of the Sahara occurred “some 440 million to 465 million years ago,”⁵ in the Ordovician period, when Africa, South America, India, Australia, and Antarctica were still joined together in the supercontinent that has been named Gondwana. What must be kept in mind is that this supercontinent was located in *Earth’s southern hemisphere*. And, judging by the direction in which the glaciers traveled, as indicated by the signs they left behind, it *does* seem that the south pole was then located plumb in the middle of the Sahara region. It is not, however the poles that have wandered from this locality, but, rather *the continents themselves*.

Now it is true that glaciologists had previously placed the south pole during this interim in East Antarctica (see map on page 11 of this same work). But, for one thing, with the continents splitting and shifting, there is no reason why both Africa and Antarctica could not have passed over the pole at different times. For another, beyond a general profile, the actual configuration of Gondwana is still somewhat imperfectly known.

Allan and Delair can thus only claim that glacial signatures in the Sahara and similar localities occur “far beyond the limits of the most extensively conceived ice-sheets” because their particular cosmic scenario only allows for one ice age, that of the Pleistocene.

Of course, following the assumptions of V. Oppenheim⁶ and A. J. Mantura,⁷ Allan and Delair have questioned the adequacy, if not the very validity, of continental drift.⁸ But while one can argue the actual fit of the continents prior to separation, the correct paths they followed in drifting, and, yes, even the *rate* of drift, to say nothing of the length of periods involved, the science of plate tectonics can now be said to be securely established.

While I am at it, I might as well lay Barbiero’s particular hypothesis to rest. As in other theories before his, the pole shift he envisions is assumed to have been caused by an asteroidal impact. Unlike others before him, however, he was astute enough to realize that, in order to shift Earth’s axis, such an impact would have to have been a grazing one. More than that,

¹ *Ibid.*, p. 144.

² *Ibid.*, p. 146.

³ *Ibid.*, p. 147

⁴ F. Barbiero, “Changes in the Rotation Axis of Earth After Asteroid/Cometary Impacts and their Geological Effects,” *Fifty Years After World in Collision by Velikovsky: Classical and New Scenarios of the Evolution of the Solar System* (Bergamo, 2002), p. 89.

⁵ W. Chorlton, *op. cit.*, p. 142.

⁶ V. Oppenheim. “Critique of Hypothesis of Continental Drift,” *Bulletin of the American association of Petrological Geology*, Vol. 51, pp. 1354-1360.

⁷ A. J. Mantura, “Geophysical Illusions of Continental Drift,” in *ibid.*, Vol. 56 (1972), pp. 1552-1556.

⁸ D. S. Allan & J. B. Delair, *op. cit.*, p. 267.

his calculations showed that the force of the luni-solar gravitational attraction on the terrestrial bulge would have had to have the same direction of the force developed by the asteroidal impact.¹ But as he himself was honest enough to confess, this condition would have no more than a 50% chance of probability. "Therefore, the probability that an impact results in a shifting of the poles is smaller than 50%, regardless of the size of the asteroid."² As he reasoned, "we can reasonably expect this probability to be in the range of 10% for objects with a mass of adequate value."³

True enough, his calculations also indicate the probability of "at least 4 collisions each million year period with objects as large as one kilometre or more."⁴ Even so, a 10% probability for the perfect grazing blow to shift Earth's axis is already low enough. And while this is *theoretically* applicable to one ice age—say that of the Pleistocene—the probability is severely lessened when the same cause is hypothesized, time and again, for an entire *series* of ice ages.

MORAINES

Allan and Delair are also incorrect when they state that "neither mountain glaciers *generally*, nor the Antarctic or Greenland ice-sheets, are now accumulating *extensive* 'drift'-like deposits"⁵—although we *do* note their caution in their use of the words "generally" and "extensive," to say nothing of their own admittance that "moraines are today found at the foot of many glaciers."⁶ Only at their "foot"? The truth is that all glaciers accumulate drift, underneath, to their sides, and up in front of them.

This, they then tell us, "does not necessarily signify that every moraine associated with 'drift' deposits was actually produced by glacial action." How else, then, can moraines be formed? As they inform us: "A receding sea-tide will leave what is essentially a moraine upon a beach..."⁷ True—but this can hardly be compared to terminal moraines left behind by the melting glaciers of past ice ages, some of which constitute entire hills measuring up to 150 feet in height.⁸

They also tell us that "at least one good record is known of a morainic structure formed by unusually severe cloudbursts—moraines which covered several acres and contained trees, soil, stones and boulders weighing up to an estimated 100 tonnes each."⁹ Here they refer to an event that took place in 1872 and reported by A. M. Gibson in the *Alabama Geological Survey* in 1895. This cloudburst, accompanied by tornadoes, created a flood that scoured the north-west side of Coosa Mountain in a sixty-foot wide washout three to four feet deep. The

¹ F. Barbiero, *op. cit.*, p. 93.

² *Ibid.* (emphasis added).

³ *Ibid.*

⁴ *Ibid.*

⁵ D. S. Allan & J. B. Delair, *op. cit.*, p. 55 (emphasis added).

⁶ *Ibid.*

⁷ *Ibid.*

⁸ W. Chorlton, *op. cit.*, p. 28.

⁹ D. S. Allan & J. B. Delair, *loc. cit.*

flood carried trees, soil, and rocks down the mountainside, creating what has been described as a "moraine-like" heap at the base of the mountain. Several scars of even greater magnitude were scoured on the south-east side, where rocks of all sizes were swept down and heaped over acres of ground.¹ It is *one* of these slabs that was calculated to weigh a hundred tons—but not "tonnes" as Allan and Delair have it.² But let that pass—we are still speaking of an enormous slab.

So what can be said against this? Well, yes, floods have been known to carry away not only trees and boulders, but roads, buildings, and bridges too, scattering them along the way. But these can hardly be classified as moraines. Actually, one can revert Allan and Delair's adage by claiming that this "does not necessarily signify that every moraine-like pile of debris was actually produced by flood action." I would have liked to say that this is a sword that cuts both ways, but, unfortunately, in this particular case, one side of the sword is severely blunted. Thus, the swath of destruction left behind by the Coosa Mountain cloudburst might have been moraine-*like*, but it hardly qualifies as a terminal moraine. We are not here so much concerned with lateral or median moraines. Our concern is with *terminal* moraines. For a flood of water to leave behind a terminal moraine that is over a hundred foot high would require a wave of the same height or higher. Such a wave would then have to come to a sudden halt and retreat in order to leave its hundred-foot-high rubble piled up behind—a virtual impossibility, needless to say. Only advancing and retreating glaciers can accomplish such a feat.

I will, however, grant that there are cases in which water-transported debris is found in association with glacial action and thus not always easily identifiable. Thus, to give but one example:

"Near the border of Montana and Idaho...an arm of the Cordilleran Ice Sheet blocked the Clark Fork River valley, holding back the water until it formed a lake with an area of more than 3,000 square miles. When the glacial dam eventually gave way, an estimated 300 cubic miles of water burst out—probably within a matter of days. The roaring torrent greatly deepened the river valley and carried boulders that measured more than 35 feet in diameter for hundreds of miles across the Columbia Plateau."³

No *terminal* moraine was, however, left behind by this roaring torrent. Besides, glacial moraines, especially terminal ones, are so distinctively positioned that, by relying on the glacial theory, Louis Agassiz, as many others after him, could correctly predict exactly where they would be found even in terrain that was entirely foreign to him.⁴

Nevertheless, despite all the above, it can safely be concluded that, once their reliance on Sitchin's particular cosmic scenario is ignored, Allan and Delair have gone a long way in il-

¹ W. M. Davis, "Cloud-burst Tracks and Water Gaps in Alabama," *Science* (February 21, 1896), pp. 276-277.

² One ton equals 2,000 lbs. One tonne, which is a metric ton, equals 2,200 lbs. Thus there is a difference of 20,000 lbs., which translates into 10 tons or 9 tonnes, between Allan and Delair's quoted figure and the figure quoted in the source they cited.

³ W. Chorlton, *loc. cit.*

⁴ *Ibid.*, p. 87.

lustrating that both the Pleistocene Ice Age and its termination were instigated by catastrophic events, and that similar signatures to those attributed to glacial action were additionally caused by a set of different, but probably related, cataclysmic episodes. With all of this, we heartily agree.

THE GLACIAL HECATOMBS

Was the onslaught of ice ages, especially that of the Pleistocene, gradual or sudden? This is a question with which both orthodox glaciologists and unorthodox catastrophists have grappled for many years. Back in 1958, Dolph Hooker could write that "there is evidence that glacial ice appeared with catastrophic suddenness."¹

"There is evidence that at a time when temperate climatic conditions extended even into polar regions, the world, teeming with warmth-loving species of floral and animal life, was overwhelmed by a fall of snow, ice and rain, so violent, so sudden, so chilling, that great numbers of creatures were forthwith destroyed; so vast, so violent that it brought to an abrupt end one geologic age and ushered in another. In many areas over the globe fossils of the buried dead eloquently testify to the suddenness and violence of the catastrophe which destroyed them. We even find it quite unnecessary to rely only upon skeletal remains. We are given the amazingly conclusive evidence of complete bodies, not just bones, of mammoths, rhinoceroses and other mammals which were destroyed and put into the deep freeze of arctic, glacial ice so suddenly that grass, branches and leaves of hard-wood trees they were eating at the moment did not have time to digest!"²

This same evidence had been used, eight years earlier, by Immanuel Velikovsky in his axial tilt scenario:

"The sudden extermination of mammoths was caused by a catastrophe and probably resulted from asphyxiation or electrocution. The immediately subsequent movement of the Siberian continent into the polar region is probably responsible for the preservation of the corpses.

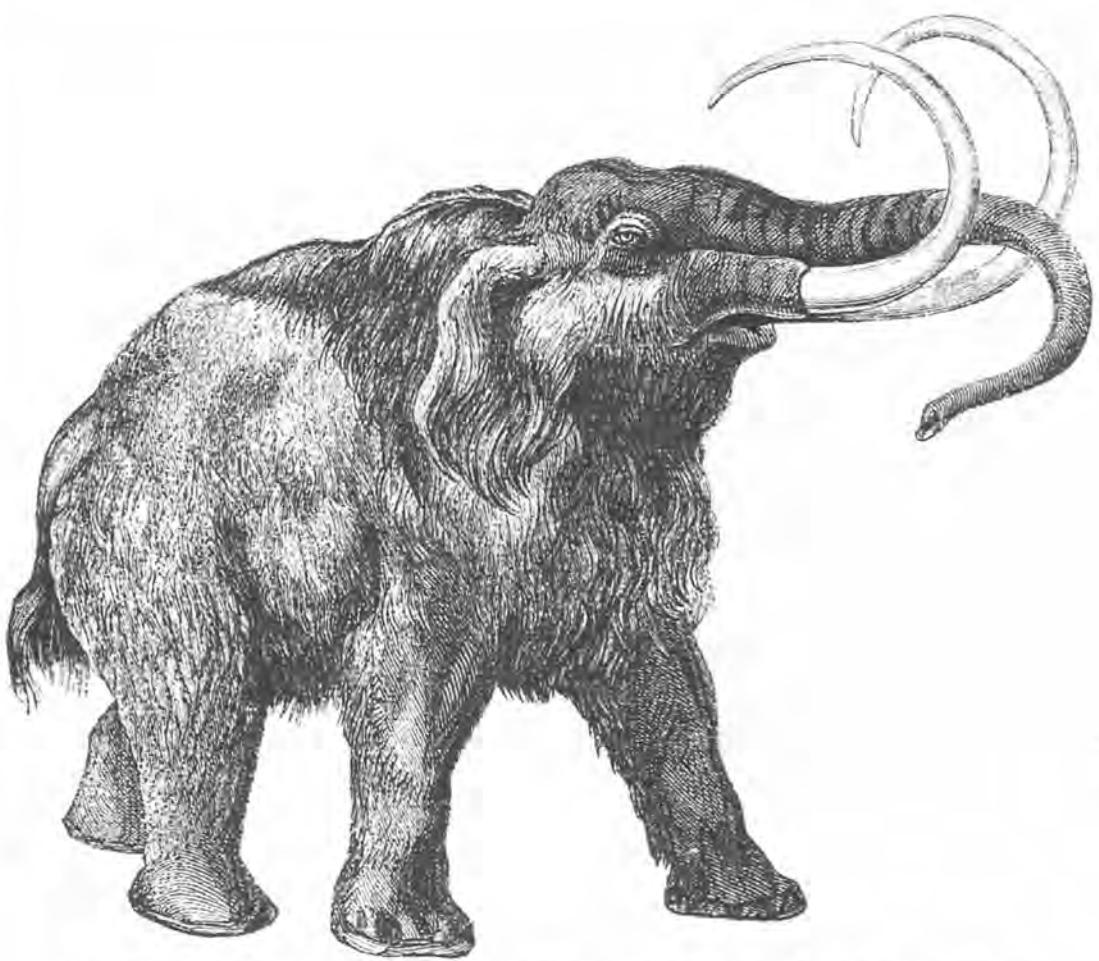
"It appears that the mammoths, along with other animals, were killed by a tempest of gases accompanied by a spontaneous lack of oxygen caused by fires raging high in the atmosphere. A few instants later their dying or dead bodies were moving into the polar circle."³

By 1970, other voices were being heard. Keeping to his model of a shifting crust, Charles Hapgood used the same data as evidence for the sudden onslaught of the Ice Age:

¹ D. E. Hooker, *Those Astounding Ice Ages* (N. Y., 1958), p. 48.

² *Ibid.*

³ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), pp. 326-327.

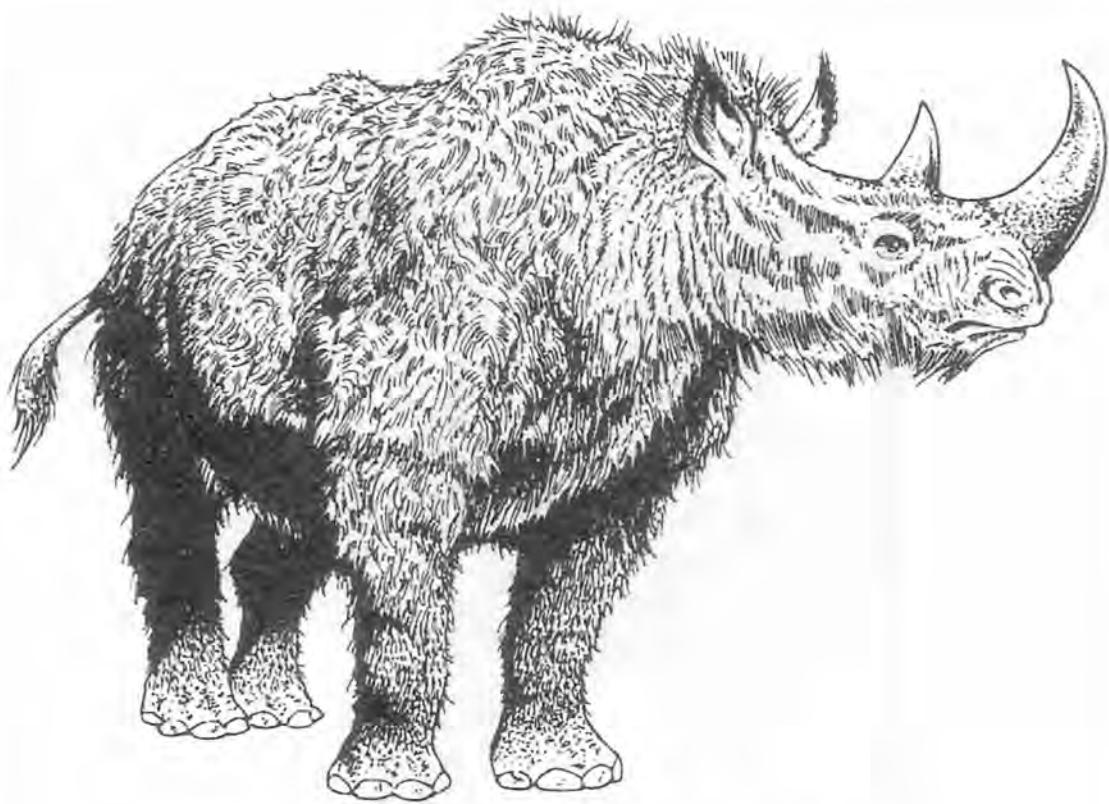


Woolly mammoth—(*Mammuthus Primigenius*)—entire herds of which once roamed
The Arctic regions.

"A very remarkable evidence of the suddenness with which the ice cap was born is the fact that it contained thousands (and perhaps millions) of animals of a temperate climate, many of them frozen entire into ice, including mastodons, mammoths, bear, elk, beaver, and so forth.

"When the ice cap melted, many of these animals were dropped into bogs, which preserved their bodies and sometimes even the contents of their stomachs. It is evident enough, from the assemblage of species, that the snow overwhelmed them while they were living in temperate conditions. What this may mean is actually rather frightening to contemplate."¹

¹ C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), p. 162.



Woolly rhinocerus—once a denizen of the Arctic.

(Illustration by Bob Giuliani.)

In concurrence with Hapgood, John White could add that evidence exists "that the middle of the Arctic Ocean was 'a temperate-climate refuge...for the fauna and flora that could not exist in Canada or the United States' at precisely the time of the great advance of the Wisconsin continental glacier three thousand miles to the south."¹

Not surprisingly, Allan and Delair also jumped on this band wagon:

"The great lenticles and ribbons of ice...containing...organic remains in Siberia, were clearly frozen more or less at, or very shortly after, the actual accumulation of the beds. In other words, the freezing of these beds, the deposition of the volcanic ash layers within them, the slaughter of the innumerable animals they now yield, and the aqueous (diluvial) mixing of this assorted debris into chaotic 'muck' deposits was extraordinarily rapid. The singular evidence of the suddenly and permanently refrigerated animal carcasses found in both the Siberian and Alaskan deposits...not only

¹ J. White, *Pole Shift* (N. Y., 1980), p. 99 (emphasis as given).

overwhelmingly confirms this but suggests that in at least those regions refrigeration was virtually instantaneous...”¹

We can therefore see that most of the catastrophists who claim that the Ice Age was due to a *sudden* onslaught of ice do so mainly on the evidence of the frozen mammoths and other mammals the remains of which have been found in Arctic and sub-Arctic regions. To be sure, the sudden catastrophic demise of the Arctic mammoths and other fauna has been debated for years.² But while this problem has not yet reached a conclusive resolution, the collective evidence, with which this author is in total agreement, *does* favor a sudden catastrophic onslaught.

Now it has often been stated that the present polar caps are the tail-end—the left overs if you wish—of the Pleistocene Ice Age. In fact, as Cesare Emiliani and E. J. Öpik have stated, current belief is that we are still living in the Ice Epoch.³ We, on the other hand, shall here instead argue that *the end of the Pleistocene Ice Age and the freezing of the present polar caps were separated by a lengthy warm period which mankind remembers as a paradisiacal era, usually termed the Golden Age, during which he lived in comfort as one with nature.*⁴ This has to be stressed because, in the past, our point of view concerning the Ice Age has been misunderstood and misrepresented by those who thought to include it in their analyses. Thus, for instance, Trevor Palmer had it stated that the hypothesis developed by my colleagues and I “would also seem to require a short-catastrophic transition between the ‘Golden Age’ and present-day conditions, with no obvious space for glaciations of long duration.”⁵ This is simply not so because, for one thing, the Golden Age, came *after* the Pleistocene Ice Age. And, for another, the Ice Age, as it is made to fit the present thesis, is *not* hypothesized to have been of *short* duration.

From the above it follows that those beasts whose remains have been found frozen in whole or in part in Arctic and sub-Arctic regions could not have been exterminated at the beginning of the Ice Age. Had that been the case, the deep frozen specimens of these animals would have had ample time to thaw and decompose during the lengthy period of the Golden Age. The conclusion reached in the present study is that these behemoths were catastrophically eradicated when the present polar ice caps were formed, long after the Pleistocene Ice

¹ D. S. Allan & J. B. Delair, *op. cit.*, p. 314

² See here especially, D. Cardona, “The Problem of the Frozen Mammoths,” *KRONOS* I:4 (Winter 1976), pp. 77 ff., reprinted in *The Sourcebook Project*, Vol. E2 (1978); W. White, C. L. Ellenberger, & D. Cardona, “Mammoth Update,” in *ibid.* VII:4 (Summer 1982), pp. 62 ff.; A. Price, “Mammoth Histology,” in *ibid.*, pp. 90 ff.; W. White, “Catastrophism and the Mammoths,” Parts I, II, & III, in *ibid.* XI:1 (Fall 1985), pp. 91 ff., XI:2 (Winter 1986), pp. 83 ff., & XI:3 (Summer 1986), pp. 89 ff.; and especially C. Ginenthal, “The Extinction of the Mammoth,” *The Velikovskian* III:2-3, *in toto* (despite the fact that he made a mess in converting Centigrade to Fahrenheit temperatures), in all of which numerous additional sources are cited.

³ C. Emiliani, “Ancient Temperatures,” in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), p. 891; E. J. Öpik, “The Ice Ages,” in *ibid.*, p. 870.

⁴ In order not to stray from the chronological sequence we are here attempting, the paradisiacal era, mythologically known as the Golden Age, will be treated in full in a future volume of this protracted series.

⁵ T. Palmer, “Catastrophes: The Diluvial Evidence,” *Chronology & Catastrophism Review* (2000:1), p. 113.

Age had come to an end.¹ Thus, in a way, Hapgood was correct when he blamed the demise of these beasts on “the suddenness with which the ice cap was born,”² although not through the mechanism he had proposed. That being the case, the catastrophic demise of these Arctic pachyderms and other mammals *cannot* be used as evidence for the sudden onslaught of the Pleistocene Ice Age. Whether that particular Ice Age, and previous ice ages, were sudden in their onslaught and/or their termination cannot even be contemplated until the *true* cause of ice ages in general can be ascertained.

THE ICE-FREE ARCTIC

The biggest problem that has so far faced the glacial theory, which most catastrophists have picked upon, holds the decisive clue concerning the real nature of ice ages, from which their actual cause can then be ascertained. Because Earth’s present coldest regions are its two polar circles, it has been generally assumed that the Pleistocene Ice Age had its origin in Earth’s north pole from which the glaciers spread southward.³ This, however, could not have been the case for the simple reason that regions within the Arctic Circle were actually spared the onslaught of ice. As Velikovsky and those who followed him, including Allan and Delair, have been stressing, northeastern Siberia, the New Siberian Islands, Novaya Zemlya, Spitzbergen, Kong Karls Land, Franz Josef Land, the eastern part of Alaska, the Yukon, islands of the Canadian archipelago, Banks Island, and northern Greenland, which today are among the coldest places on Earth, were not glaciated during the Pleistocene Ice Age.⁴ As Henry Howorth reported as early as 1893:

“It is a familiar fact that there are no traces of glaciation in northern Asia, but, on the contrary, there is the most complete and consistent evidence that no such traces are to be found either on the flat tundras or on the higher ground.”⁵

And:

“We find, roughly speaking, that by the fortieth meridian of east longitude, passing through the White Sea, and the one hundred sixtieth of west longitude, passing through Alaska, but separated by the Atlantic Ocean, is included the portion of the northern hemisphere which presents us with proofs of that abnormal extension of ice which we styled the Glacial Epoch. Great as this extension of the glacial episode was,

¹ See here D. Cardona, “The Demands of the Saturnian Configuration Theory,” *Chronology & Catastrophism Review* (2000:1), pp. 73-74.

² C. H. Hapgood, *loc. cit.*

³ See, for instance, W. Cholrlton, *op. cit.*, pp. 18, 24.

⁴ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), pp. 325-326; C. W. Hunt, “Constraints on the World Mountain Concept,” *AEON* I:6 (December 1988), p. 109; D. S. Allan & J. B. Delair, *op. cit.*, pp. 39, 247; D. S. Allan, “An Unexplained Arctic Catastrophe,” *Chronology & Catastrophism Review* (2001:2), pp. 3 ff., where various other sources are cited.

⁵ H. Howorth, *The Glacial Nightmare and the Flood*, Vol. II (London, 1893), p. 502.

it is only fair to point out that from the Kola Peninsula in fortieth east longitude to Bering Strait, the vast tundras of Siberia, extending through one hundred fifty degrees of longitude, do not appear to present any traces of that abnormal ice episode which is so remarkably impressed on northwestern Europe and the northern part of America... There is consequently no evidence for assuming that during the extension of the glacial episode on Scandinavia, Great Britain, and North America the climate of Siberia differed very greatly from what it is now. Presumably it must have been warmer, for the land at that time supported vast herds of mammoth, rhinoceros, and other large mammals whose remains are found in the tundras of Siberia and the more northern New Siberian Islands.”¹

True enough, in 1952, Öpik recommended prudence, at least as far as Siberia is concerned. As he wrote then, “in most textbooks Siberia is referred to as having been free from ice.”² To which he added: “This is an example of how imperfect our knowledge of past glaciations may be, and summons us to caution, especially with respect to former ice ages which happened hundreds of millions of years ago, and of which fewer traces must have been preserved than of the recent Quaternary [in which the Pleistocene epoch falls]...”³

Öpik was right: Our knowledge of past glaciations *was* imperfect in 1952 as, to some extent, it still is. But nothing that has come to light since he wrote those words have changed the situation that J. B. Dana originally reported when he wrote that: “It is a remarkable fact that no ice mass covered the low lands of northern Siberia any more than those of Alaska.”⁴ In fact, whatever glaciation gripped northeastern Siberia, east of the Lena, was of an alpine type and not a continuous ice cover; only the highlands boasted a few glaciers, while the coastal plain was left free of ice.⁵ This situation being akin to modern-day Switzerland, one can hardly call it an ice age.

And, as R. F. Griggs stated in *Science*:

“The islands of the Arctic Archipelago were never glaciated. Neither was the interior of Alaska.”⁶

In the late 1900s, Allan and Delair could still declare that:

“Today, the world’s coldest known land region is north-eastern Siberia. There, if anywhere, we might expect huge ice-sheets to have developed if the Ice Age theory

¹ *Ibid.*, p. 510.

² E. J. Öpik, *loc. cit.*

³ *Ibid.*

⁴ As quoted by I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 43.

⁵ A. P. Vaskovsky in K. K. Markov & A. J. Popov (Eds.), *Ice Age in the European Section of USSR and in Siberia* (Moscow, 1959), p. 512; W. R. Farrand, “Frozen Mammoths and Modern Geology,” *Science* (March 17, 1961), p. 732.

⁶ R. F. Griggs, “Indications as to Climate Change From the Timberline of Mount Washington,” *Science*, Vol. 95, No. 2473 (1942), p. 519.

possessed validity. Yet comparatively very few areas of Siberia exhibit signs of significant glaciation, either past or present...

"Interestingly, as in neighbouring Alaska to the East, thin rock pinnacles still stand unglaciated at several Siberian localities which thick ice, had it once existed, would unquestionably have ground down and demolished."¹

By the 21st century, this had become so unarguably apparent that the editors of *National Geographic* could by then proclaim outright that:

"Ice held most of the northern latitudes in its grip 18,000 years ago—with important exceptions. In the last ice age glaciers never completely covered eastern Siberia, Alaska, and the Yukon."²

In Alaska, only the mountains were glaciated.³ Glaciated mountains on their own, however, do not make for an ice age. Also, during the height of the Ice Age, when south-eastern Alaska is avowed to have been under ice, "remains in a cave indicate that plants and animals were still thriving there."⁴

The polar explorer Vilhjalmur Stefansson could also deduce that: "Probably, then as now, an exception was the northernmost part of Greenland; for it seems a rule that the most northerly lands are not, and never were, glaciated,"⁵ as has more recently been confirmed by K. H. Cuffey and S. J. Marshall.⁶

Labrador and Newfoundland, too, seem to have escaped the icy onslaught.⁷ In analyzing a sedimentary core drilled from the Labrador coast, Gustav Vilks and Peta Mudie came to the conclusion that "an ice-free ocean may have occurred as early as 22,000 years before the present." Pollen from this area "indicates the continuous regional presence of terrestrial vegetation during this time."⁸

In fact, great tracts of the Canadian Arctic were spared from the onslaught of ice.

"The...absence of glaciation of sizable areas of Arctic Canada may have been greater than generally conceded; for although Cornwallis and Devon islands at 75° 32' N are commonly believed to have been glaciated and are depicted as being so on maps reconstructing Ice Age times, Grinnell Land still further north at the polar end of

¹ D. S. Allan & J. B. Delair, *op. cit.*, p. 39.

² "Plant that Beat the Ice Age," *National Geographic* (March 2001), "Geographica" section, page not numbered.

³ T. W. Field, "Evidence of an Inversion Event?" *AEON* II:1 (June 1989), p. 10.

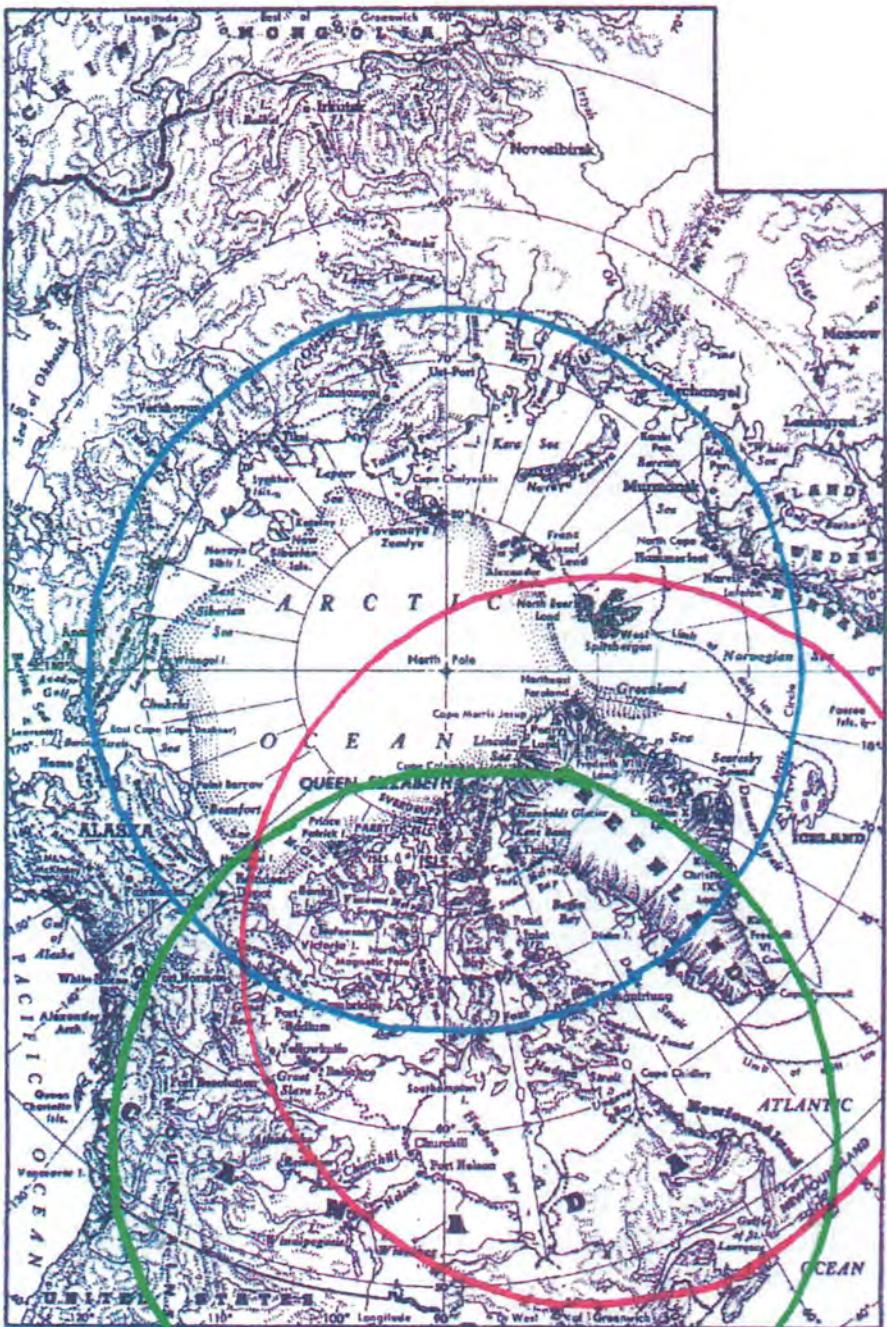
⁴ As reported in "Secrets of the Ice Age," *Chronology & Catastrophism Review* (2001:2), p. 43.

⁵ V. Stefansson, *Greenland* (1942), p. 4.

⁶ K. H. Cuffey & S. J. Marshall, *Nature*, Vol. 405 (2000), as cited by J. B. Delair in his obituary to his co-author, Derek Scott Allan, *Chronology & Catastrophism Review* (2001:2), p. 62.

⁷ D. S. Allan & J. B. Delair, *op. cit.*, p. 45.

⁸ G. Vilks & P. J. Mudie, "Early Deglaciation of the Labrador Shelf," *Science* (December 15, 1978), pp. 1181, 1183.



Earth's north polar regions.
Blue circle indicates the Arctic Circle.
Red circle indicates Velikovsky's displaced polar cap.
Green circle indicates Hapgood's displaced polar cap.

Ellesmere Island, Banks Island and Prince Patrick Island all yield evidence militating against the notion that they were ever glaciated at all.”¹

Thus marine shells which have been found at high elevations on the islands of the Canadian Arctic “should have been pulverized had ice-sheets ever crept across these territories...”²

Even England might have escaped the Pleistocene ice. As Allan and Delair noted, despite maps which show the radiation of ice sheets from the interior of Great Britain toward the coast, glacial signs from southern Scotland, Aberdeenshire, the North Sea, the Shetland Islands, and elsewhere are lacking.³ Additionally, the mining of a fossil site near Oxford, dated to 200,000 years ago, when the Ice Age has been calculated to have been at its height,⁴ yielded the remains of plants and mammals, including mammoths and lions, “indicative of a lush warm period.”⁵

Evidence from the other side of the world indicates that even Tibet, the present coldness of which need not be stressed, might have been ice-free during the Ice Age. This evidence comes from human hand and foot prints imbedded in solidified mud which David Zhang discovered 50 miles from Lhasa. Through the technique of optical dating, Zhang and his colleague, Shenghua Li, from the University of Hong Kong, have determined that the prints date from 20,000 years ago, during the time when glaciologists believed the Tibetan Plateau to have been covered by the half-mile thick ice sheet of the Pleistocene epoch.⁶ Had that been the case, there would not have been any exposed surface mud to harden into rock bearing the imprints of human hands and feet.

What all the above indicates is not what Velikovsky, Hapgood, and those following them have been claiming. It does not indicate a displacement of the Arctic polar cap.⁷ As can be easily seen in the preceding map, Velikovsky’s displaced ice cap, centered, as he claimed, on Baffin Bay (between Greenland and Baffin Island), would include all of Greenland, Spitzbergen, Newfoundland (including Labrador), and all of the Canadian Arctic islands, which we have seen to have been free of ice. So, likewise, with Hapgood’s displaced cap, centered on Hudson Bay, which would also have included Canada’s Arctic Islands, most of which were unglaciated. True, both of them exclude Siberia, the New Siberian Islands, Novaya Zemlya, and adjacent lands; but that, unfortunately, is not enough. One can perhaps think of shrinking the periphery of the areas indicated by both Velikovsky and Hapgood, but this, then, would omit areas in the south which *were* glaciated. Besides, if the glaciated region of the Pleistocene Ice Age is supposed to have been a previous polar cap, one would reasonably have to assume that it would have covered a comparatively equal area to that enclosed by the

¹ D. S. Allan & J. B. Delair, *op. cit.*, pp. 42, 62.

² *Ibid.*, p. 40.

³ *Ibid.*

⁴ See here, for instance, G. Gamow, “Origin of the Ice,” *Scientific American* (October 1948), p. 42.

⁵ *Earthwatch Magazine* (January-February 1995), p. 30, as reported in “Ice Age Eden,” *Chronology & Catastrophism Workshop* (1995:1), p. 31.

⁶ J. Glausiusz, “High Jinks at the Hot Springs,” *Discover* (July 2002), p. 16.

⁷ See here also, J. White, *Pole Shift* (N. Y., 1980), pp. 98, 364.

present Arctic Circle. Fine, I will even grant that such territory would not have had to be a perfect, or even near-perfect, circle. After all, given the various elevations of land, ocean currents, and wind directions, the glaciated area *would* have been somewhat irregular. But, then, with enough juggling, any data can be made to fit a preconceived scheme.

On the other hand, one inescapable fact we notice from a map of Earth's north polar region is that, with but some exceptions, give or take a little, all the areas which remained unglaciated during the Pleistocene Ice Age lie *within* the present Arctic Circle. The major exceptions include Tibet on one side, and Great Britain on the other. These two localities, however, seem to fit no one else's overall plan and must therefore be assigned to the vagaries of nature due to the above mentioned difference in land elevations, wind directions, and especially ocean currents *as they existed at the time*. Strange as it may sound—and our scenario will grow stranger still—what all this indicates is that, during the Pleistocene Ice Age, the entire Arctic Circle was free of ice.

But hold on, one might object: What about the Arctic Ocean itself? Was this not supposed to have been entirely covered by pack ice, with its periphery encroaching latitudes to the south beyond its present reaches? Yes, it *has* been so conjectured by the vast majority, but even as early as 1949, C. E. P. Brooks found reason to doubt this. As he then asked: "The interesting question arises, has the temperature of the Arctic Ocean risen above the critical point at any stage of post-glacial times?"¹ And, as he himself answered:

"I think there is no doubt that it has...During the 'Climatic Optimum' there was a rich flora in Spitsbergen, while the fossil marine mollusca indicate a coastal sea temperature much higher than the present in all the Arctic lands which are at present dominated by sea ice, including Iceland and Greenland."²

So, similarly, with P. Borisov who, twenty-four years later, came to the same conclusion. "Twice during the Holocene," he wrote, "for a total of 5,000 years the Arctic Basin was completely free of ice."³

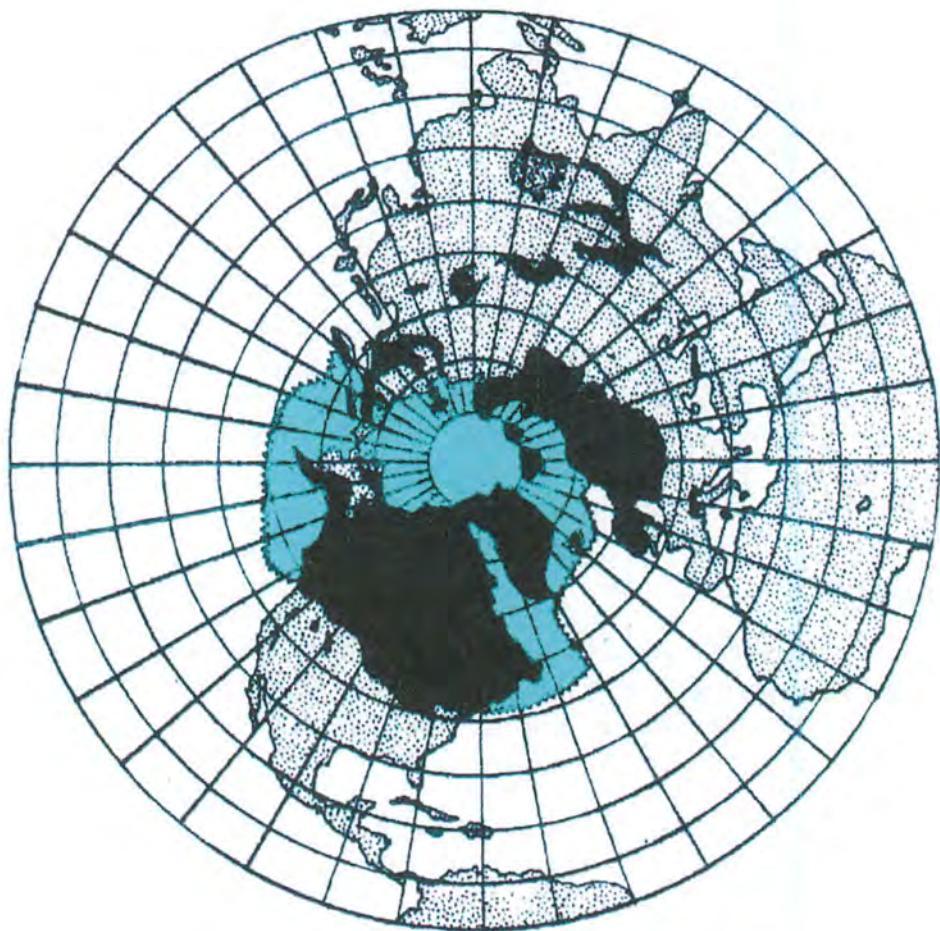
Granted, both Brooks and Borisov were alluding to post-glacial times, since the Holocene followed immediately after the Pleistocene. Even so, the Arctic Basin, which contains the Arctic Ocean, should not have been free of ice *at any time* either during or immediately following the Pleistocene Ice Age. Needless to say, the glaciation or otherwise of the Arctic Ocean basin is more complex than that since we are not here dealing with glacial scars left on solid ground. As Martin Siegert and his colleagues noted:

"By the mid-1980s...the interpretation of the geological observations varied enormously. Whereas some saw evidence for a massive, 3.5-kilometer-thick ice sheet over the whole of northern Europe and Siberia at the height of the last ice age...others disputed this appraisal, preferring to believe that there was virtually no ice at all on the seafloor to the north of the Norwegian and Russian mainlands. Contradictory views

¹ C. E. P. Brooks, *Climate Through the Ages* (N. Y., 1949), p. 142.

² *Ibid.*

³ P. Borisov, *Can Man Change the Climate?* (Moscow, 1973), pp. 63-64.



Conjectured periphery of Arctic Ocean pack ice shown in blue.

Conjectured glaciated areas shown in solid black.

But do these conjectures conform with the evidence on the ground?

spurred in the literature. The problem was partly that the geological record in the Arctic can be difficult to read and thus open to misinterpretation.¹

Moreover, as I aim to indicate in a forthcoming volume, the manner in which the present north pole froze over at the end of the Golden Age would have eradicated the majority of previous glacial signatures and jumbled up what escaped eradication.¹

¹ M. J. Siegert, *et al.*, "The Eurasian Arctic During the Last Ice Age," *American Scientist* (January-February 2002), p. 32.

In the meantime, the evidence continues to pile up. As Derek Allan, writing on his own, noted:

“At many places north of the present Arctic Circle, remnants of [temperate zone] vegetation still lie *in situ*...Significantly, none of these plants can now flourish there. It is, therefore, difficult to imagine a frozen Arctic Ocean existing alongside such temperate flora.

“Evidence of this ancient flora has been discovered, often in great abundance, on islands which now lie closest to the present North Pole...

“Furthermore, research during the latter half of the 20th century established that large areas of the Arctic were never glaciated in so-called ‘Ice Age’ times...”²

What is also telling is that the Arctic region was not only free of ice during the Pleistocene Ice Age, it was also free of ice during previous ice ages, including the Jurassic period³ and the later Devonian . Through their study of fossils, John Flynn and André Wyss could report that:

“At the dawn of the Mesozoic era 250 million years ago...the planet’s land masses were united in the supercontinent Pang[a]ea...The world was a good deal warmer than at present—*even the poles were free of ice.*”⁴

Again, it is not that the *dawn* of the Mesozoic included a glacial age—although the Jurassic period of the same era did—but the freezing of the poles are not conventionally believed to be reliant on ice ages. Under the orthodox scheme, Earth’s polar regions should have been frozen over regardless of whether an ice age was in progress or not. That the poles were ice-free during this period still requires an explanation.

When it comes to the Devonian period, Elso Barghoorn had to acknowledge that:

“Unfortunately our knowledge of early Devonian plants from areas within the present tropics is extremely limited, and it is not possible to attempt a reconstruction of the climatic zones of the earth during Devonian time on the basis of plant distribution. The *known* distribution of Devonian plants, especially their diversification in high latitudes, suggests that *glacial conditions did not exist at the poles...*”⁵

¹ See here, again, D. Cardona, “The Demands of the Saturnian Configuration Theory,” *Chronology & Catastrophism Review* (2000:1), pp. 72-75.

² D. S. Allan, “An Unexpected Arctic Catastrophe,” *Chronology & Catastrophism Review* (2001:2), p. 3.

³ E. S. Barghoorn, “Evidence of Climate Change in the Geologic Record of Plant Life,” in P. Cloud (Ed.), *op. cit.*, p. 737.

⁴ J. J. Flynn & A. R. Wyss, “Madagascar’s Mesozoic Secrets,” *Scientific American* (February 2002), pp. 56-57 (emphasis added).

⁵ E. S. Barghoorn, *op. cit.*, p. 735 (emphasis added).

All of the above entails a conundrum that has been known for quite some time, but glaciologists have never known what to do about it.

What I have to offer next is bizarre in the extreme and will make glaciologists, and especially astronomers, shudder at the thought of it. Logic, however, compels us to assume that an ice-free Arctic situated above latitudes which themselves were gripped within a relentless ice age calls for a permanent source of heat located right above Earth's celestial north pole. This is the same conclusion we reached when, in our previous volume of this protracted series, we examined the lengthy periods of warmth between ice ages in which the entire world was bathed in past geologic ages.¹ Most notably, we saw there that, not only had the lands within the Arctic Circle been basking in this warmth, but that, in fact, the polar north had been even warmer than more southerly latitudes. More than that, we also noted that temperate, sub-tropical, and even tropical animals seem to have appeared there long before they did much farther to the south.²

What led us to this disclosure? And how will it help us solve the riddle of ice ages?

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 361 ff.

² *Ibid.*, pp. 384-385.

PART TWO

THE SATURN THESIS

Reiteration

MYTHS AND LEGENDS

As those who have read the prequel to this work should remember, our thesis owes its stimulus to what ancient races had to tell us concerning the sky above them. It all started as simple as that. The information concerning what primitive man saw in heaven was derived from the mytho-historical record of ancient races. Despite the fact that our thesis was supported by astrophysical, geological, and palaeontological evidence, objections against our methodology were not entirely put to rest. Myth, it has been stressed time and again, has no place in science. But, more than science, we are here concerned with history and, as that great comparative mythologist Mircea Eliade aptly phrased it, true history *is* myth¹—which is to say that, as far as our primitive forefathers were concerned, history *began* with myth. This is because, prior to the founding of the first civilizations, primitive man had no incentive to preserve the past actions of his own kind but, for reasons soon to become evident, he was obsessed by what transpired in the sky, the domain of influence in which his capricious deities lived and died.

Why should we believe what myths proclaim?—it has been asked. Are not myths simply that, fanciful tales of miraculous events, devoid of any reality? As P. Vayne asked in relation to Greek mythology:

“What is to be made of this mass of nonsense? How can all this have a meaning, a motivation, a function, or at least a structure? The question of whether myths have an authentic content can never be put in positive terms.”²

Or, as Ev Cochrane also asked: “Why should anyone care about ancient myth?”³ Cochrane, however, replied to his own question by stating that:

“The answer, quite simply, is that for untold centuries myth served as the primary means of recording and communicating man’s fundamental ideas regarding the nature of the cosmos and the sacred. In this sense, ancient myth represents an intellectual heirloom encapsulating the history of our species and is thus a ripe field of study for all students of evolutionary psychology. If, as appears to be the case, myth also pre-

¹ M. Eliade, *Patterns in Comparative Religion* (London, 1996), p. 401.

² P. Vayne, *Did the Greeks Believe in Their Myths?* (Chicago, 1988), p. 2.

³ E. Cochrane, *The Many Faces of Venus: The Planet Venus in Ancient Myth and Religion* (Ames, 2001), p. 181.

serves important clues for reconstructing the recent history of our solar system, its study becomes all the more essential.”¹

Some myths *do* contain what *seems* to be an element of incredibility. For that reason, myth has often been interpreted on an allegorical level, as it continues to be to the present, especially among modern affluent cults. As Martin Bernal noted in relation to Egyptian mythology, “the allegorical interpretation of myth as an expression of the ancient wisdom of the Egyptian priests survived and flourished among Freemasons and Rosicrucians.”² More often than not, however, the cursory reader of mythological works is simply bowled over by the myths’ complexity and magical content. Ignatius Donnelly long ago remarked that:

“Legend has one great foe to its perpetuation—civilization. Civilization brings with it a contempt for everything which it cannot understand; skepticism becomes the synonym for intelligence; men no longer repeat—they doubt, they dissect, they sneer, they reject...If the myth survives this treatment, the poets take it up and make it their stock-in-trade—they decorate it in a masquerade of frippery and finery, feathers and furbelows, like a clown dressed for a fancy ball...and the poor barbarian legend survives at last, if it survives at all, like...a hippopotamus smothered in flowers, jewels and laces...”³

Myth must then be interpreted, *when it needs interpreting at all*, after it has been stripped clean of its “frippery and finery, feathers and furbelows,” its “flowers, jewels and laces.” In other words, it is the core of a myth that should concern us and not the trimmings it might have acquired in later times.

That modern man has no use for myth is somewhat ironical when one remembers that those of a religious mind, regardless of their particular persuasion, often find themselves immersed in mythic ritual. These might not realize it, but religious ritual is nothing more than the re-enactment of myth. Hodder Westropp and Staniland Wake were right on the mark when they proclaimed that, together with language, worship is nothing more than crystallized history⁴—which compares well with Eliade’s own dictum mentioned above. As the same Eliade also avowed, “the greater part of primitive man’s actions were, so he thought, simply the repetition of a primeval action accomplished at the beginning of time by a divine being, or mythical figure.”⁵ In other words, ritual, including sacrifice, is the re-enactment of past mythic events, and this remains true to the present, regardless of whatever religion is involved.

In the Greek world, ritual also developed into drama, from which it can be said that drama owes its origin to mythic ritual. More than that, as we indicated in our previous vol-

¹ *Ibid.*

² M. Bernal, *Black Athena* (New Jersey, 1988), p. 182.

³ I. Donnelly, *Ragnarok: The Age of Fire and Gravel* (N. Y., 1894), p. 117.

⁴ H. M. Westropp & C. S. Wake, *Ancient Symbol Worship: Influence of the Phallic Idea in the Religions of Antiquity* (N. Y., 1875), p. v.

⁵ M. Eliade, *op. cit.*, p. 33.

ume on this subject,¹ Greek drama, for which such magnificent theatres were built, originated from the mythic ritual concerned with one particular deity—Dionysos.

As Rush Rehm noted:

“The first theatrical productions were probably also connected with the worship of the wine-god Dionysus [variant: Dionysos]. From paintings on vases (often wine vessels), we know that initiates in the Dionysiac cult sometimes danced around an image of the god attached to a tree or pole. These mask-like visages of Dionysus may have influenced the use of masks by actors and the chorus...”

“The Greeks adopted Dionysus as the god of their theatre, and tragic and comic performances took place at city-sponsored festivals held in his honor. The biggest festival, held at the City Dionysia (the sanctuary to Dionysus), took place every spring in Athens, where large audiences gathered over several days. The close link to Dionysus gives some support to a theory about drama’s origins [which was] popular earlier this century...”²

This is ascertained by the aforementioned Bernal in his contemplation of the origins of Greek theatre. “It is striking to note,” he wrote, “that in Greece, tragedy, which was essentially religious, was associated with both Dionysos and the goat, *tragos*.³ In fact it is from the Greek word for “goat”—that is, *tragos*—which animal was sacred to Dionysos, that the word “tragedy” is derived. All of which is quite revealing because, besides being the god of wine and revelry, as we indicated in our previous volume, Dionysos originated as the anthropomorphized representation of the planet Saturn.⁴

The Classical Greeks came relatively late on the mythological scene. This, however, does not mean that their deities were of Classical manufacture. As Peter James and his co-authors revealed:

“The decipherment of Linear B [a Mycenaean script] threw a completely new light on the Mycenaean world. For example, it is now known that the Olympian gods familiar from Homer (including Zeus, Hera, Poseidon, Athena, Artemis, Hermes and Dionysos) were [already being] worshipped during the late Bronze Age.”⁵

Even so, way ahead of the Greeks were the civilizations of Egypt and Mesopotamia. The major mythic themes with which the scholar is now familiar are, however, even more ancient than that. As Donald Mackenzie reported, the major myths of the ancient world trace all the

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 4-12.

² R. Rehm, “The First Act,” *Archaeology Odyssey* (July-August 2000), p. 7.

³ M. Bernal, *op. cit.*, p. 65.

⁴ D. Cardona, *op. cit.*, pp. 80, 312, 314, 317, 443-446.

⁵ P. James, *et al.*, *Centuries of Darkness* (New Jersey, 1993), p. 82.



Ritual, including sacrifice, constitutes the re-enactment of past mythic events.

Shown above: The Roman rite of *suo vetaurilia*, in which the sacrifice of a bull, sheep, or pig took place, with the animal's internal organs being offered to the gods.

(Illustration by John Green.)



The magnificent theatre of Polycleitos the Younger at Epidaurus, Greece.
(Photograph by the author.)

way back to an “immense antiquity”¹—even to prehistoric times. Given such antiquity, which predates the advent of writing, it becomes evident that these mythic tales would have had to have been passed orally from one generation to the next down through the ages. It is therefore understandable if one were to question the reliability of such a protracted mode of communication. But, as Ian Wilson pointed out:

“Such attitudes are...coloured by our own era of reliance on mechanical recordings. We forget that before the days of television and radio it was a matter of course for our own grandfathers to learn by rote poems and ballads of a length that seems totally impossible to us today. Even in our own time remote communities in Ireland, Armenia, Afghanistan and elsewhere have bards who regale them with centuries-old recitations of the heroic deeds of their ancestors. Many generations of Greeks transmitted the entire *Iliad* and *Odyssey* to each other in this way, and there are still Moslems who can recite from memory the entire Koran.”²

¹ D. A. Mackenzie, *Myths of Babylonia and Assyria* (London, 1915), republished as *Mythology of the Babylonian People* (London, 1996), p. xxix.

² I. Wilson, *Exodus: The True Story* (San Francisco, 1985), p. 14.



The Face of Tragedy.
Theatrical mask carved on now-fallen stone.
Roman theatre at Myra, present-day Turkey.
(Photograph by the author.)

As we noted in our previous volume, the Egyptians even recognized the advantage of the reliance on memory over the written word.¹ It was no different among the ancient Greeks, as Michael Coe well illustrates:

"Socrates makes the point in Plato's dialogue that writing will not help in the search for truth. He compares writing to painting—paintings *look* like living beings, but if you ask them a question, they are mute. If you ask written words a question, you get the same answer over and over. Writing cannot distinguish between suitable and unsuitable readers: it can be ill-treated or unfairly abused, but it cannot defend itself. In contrast, truths found in the art of dialectic *can* defend themselves. Thus, the spoken is superior to the written word!"²

This situation remained true, as Henry Zemel indicated, right down into the European Renaissance:

¹ D. Cardona, *op. cit.*, pp. 17-18.

² M. D. Coe, *Breaking the Maya Code* (N. Y., 1992), p. 14 (emphasis as given).

“The Renaissance...spelt the end of many ideas and practices that disappeared beyond time’s horizon: time-honored memory system used by clerics, rabbis, Greek and Roman orators, and anyone else who wanted to recall great globs of information. Today, these techniques are nearly forgotten...”¹

Francis Yates, as Zemel informs us, wrote a “charming book,” titled *The Art of Memory*, which “reconstructs the pervasive influence of memory techniques during the early Renaissance, and spells out why knowledge of these systems [eventually] faded.”²

Thus Coe could very well state that:

“Socrates was undoubtedly right—nonliterate peoples are capable of astonishing feats of memory, as ethnologists can testify. Immense tribal histories have been committed to memory by bards and other specialists; one has only to think of the *Iliad* and the *Odyssey*, which were recited with line-for-line accuracy by Greek bards...”³

Thus, also, William Stiebing, who could declare that “illiteracy and a low standard of material culture do not imply a lack of intelligence or creativity...”⁴ To which he added:

“Oral epic poetry has flourished in illiterate or semi-literate societies, including the Balkans and Crete in relatively recent times. Scholars have noted in Homer’s epics the same techniques of oral compositions, especially the use of memorized descriptions and catchwords (‘bright-eyed Athena,’ for example, or ‘rosy-fingered dawn’), as are used in oral poetry from more recent cultures. The production of exceptional poetry, even long epic poems like the *Iliad* and the *Odyssey*, does not assume the existence of literacy or advanced civilization.”⁵

So, similarly, with the ancient lore of India, the early Vedas, and even the later Puranas, concerning which Heinrich Zimmer informs us that:

“The stories themselves are of immense antiquity. Before receiving their present form the wonderful adventures were told and retold through many centuries.”⁶

Traditional learning by rote persisted among nonliterate peoples into modern times.

“I myself can bear witness to such feats of memory [wrote Coe]. Late one chilly afternoon during the great Shalako ritual of the Zuñi pueblo, in New Mexico, my friend Vincent Scully and I were in the Council House of the Gods; seated around the walls were the impassive priests, chanting the immensely long Zuñi Creation Myth,

¹ H. Zemel, “Forget Amnesia,” *AEON* VI:3 (November 2002), p. 119.

² *Ibid.*

³ M. D. Coe, *loc. cit.*

⁴ W. H. Stiebing, Jr., “Hot Air,” *Archaeology Odyssey* (January–February 2002), p. 60.

⁵ *Ibid.*; see also D. Cardona, *op. cit.*, pp. 14, 16.

⁶ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 178.



Medieval Irish bard at court.

These honored entertainers in the Celtic tradition were trained in special bardic schools in which they were thoroughly drilled in their art. Some of these bardic schools survived into the seventeenth century.

(Illustration by A. G. Smith)

hour upon hour of deep, unison droning, in which not one word or syllable could be gotten wrong. And all that without the benefit of written text. One mistake in recitation would have meant disaster for the tribe.”¹

And—from Tom Lowenstein and Piers Vitebsky:

“For native audiences, myths were far from being fantastic ‘fairytales’...Rather, stories were seen as accounts of real events that took place at the dawn of time. The purpose of myths and legends was both to instruct and to entertain...Storytelling occupied a seminal position in Native American cultures. It was not a purely spoken art: singing and drumming were often involved.”²

Likewise with the Polynesian people. Even that for-long mysterious script known as *rongorongo*, which the natives of Rapanui, or Easter Island, are known to have employed, does not date farther back than the late nineteenth century.³

“The Rapanui people had no need for a script [Steven Fischer, the man who finally decoded the inscriptions declared]. No Polynesian—indeed none of the three-million-odd inhabitants of Oceania in the eighteenth century, needed a writing system. Oral traditions and knot records had served these peoples well in this regard for thousands of years.”⁴

In the Society Islands, entire colleges of priestly teachers instructed the people in their ancient mythology, religious rites, and even poetic compositions. These teachers, drawn from priestly families, had themselves to undergo a strict training program before being allowed to practice and teach. They even had to endure a period of retreat which was followed by an oral examination before a group of elders. Tony Allan and his co-authors tell that one island, Opoa, “became such a centre of religious learning that it drew European comparisons with Mecca and Rome—as well as the less complimentary epithet, ‘the metropolis of idolatry’.” Similar schools also existed in Hawaii.⁵

With this universal oral tradition stretching back to prehistoric times, one begins to wonder how tales told in one part of the world ended up being similar, sometimes near-identical, to tales in other parts which would at the time have been far removed from cultural contact. Although not the subject of the present work, one such tale that comes easily to mind is the well known misadventure of Phaethon, son of Helios, who, having driven his father’s chariot across the sky, lost control of it and ended up burning the Earth below. In the end, Zeus was forced to intervene by dispatching one of his terrible thunderbolts with which he smote

¹ M. D. Coe, *loc. cit.*

² T. Lowenstein & P. Vitebsky, *Mother Earth, Father Sky* (Amsterdam, 1997), p. 11.

³ S. R. Fischer, *Glyph-Breaker* (N.Y., 1997), p. 184.

⁴ *Ibid.*

⁵ T. Allan, *et al.*, *Journeys Through Dreamtime* (Amsterdam, 1999), p. 117.

Phaethon and his chariot. Phaethon ended up hurtling through the air in flames together with the shattered chariot, falling to his untimely death and leaving a long trail behind.¹

This myth has its counterpart in one told by the Bella Coola Indians of British Columbia in which the son of the Sun took his father's torches, carrying them across the sky, with which he ended up burning the Earth and its inhabitants. Like Phaethon, he, too, was finally cast down from the sky.²

The same tale, in slightly different garb, is also told by the neighboring Kwakiutl. While in this version the son of the Sun is entrusted with his father's jewels in lieu of torches, the outcome is the same. Deciding to take a shortcut across the sky, our unfortunate hero strayed too close to Earth, coming close to burning it, until the Sun intervened by tearing the jewels from his grasp and casting him into the sea.³

In comparing these far-flung but similar myths,⁴ James Frazer raised the issue concerning whether their similarity could have been due to borrowing. "Whether the remarkable resemblances between the Greek and the Indian versions of the tale are to be explained as due to independent invention or to European influence," he wrote, "is a question which, so far as I know, there is no evidence to determine, and on which therefore it would be rash to pronounce an opinion."⁵

Similar sentiments have been expressed since then by others, but, as Donald Mackenzie noted as early as 1915 in relation to Babylonian mythology, these similarities should not automatically be dismissed as having necessarily been due to borrowing.

"To students of comparative folklore and mythology the myths and legends of Babylonia present many features of engrossing interest. They are of great antiquity, yet not a few seem curiously familiar. We must not conclude, however, that because a European legend may bear resemblances to one translated from a cuneiform tablet that it is necessarily of Babylonian origin. Certain beliefs, and the myths which were based upon them, are older than even the civilization of the Tigro-Euphrates valley. They belong, it would appear, to a stock of common inheritance from an uncertain cultural centre of immense antiquity."⁶

It is not that direct borrowing through diffusion did not occur.⁷ The path of diffusive borrowing, however, can be easily traced. But what of mythological similarities which leave no trace of appropriation? If not through borrowing and diffusion, how could different races and nations separated by geography have ended up believing in identical, or near-identical, events, especially when these events bear such obvious marks of the extraordinary? This is

¹ Although this tale was well known in ancient Greece, it is best preserved by Ovid in his *Metamorphoses* II:1:329.

² S. Thompson, *Tales of the North American Indians* (1929), pp. 44-45.

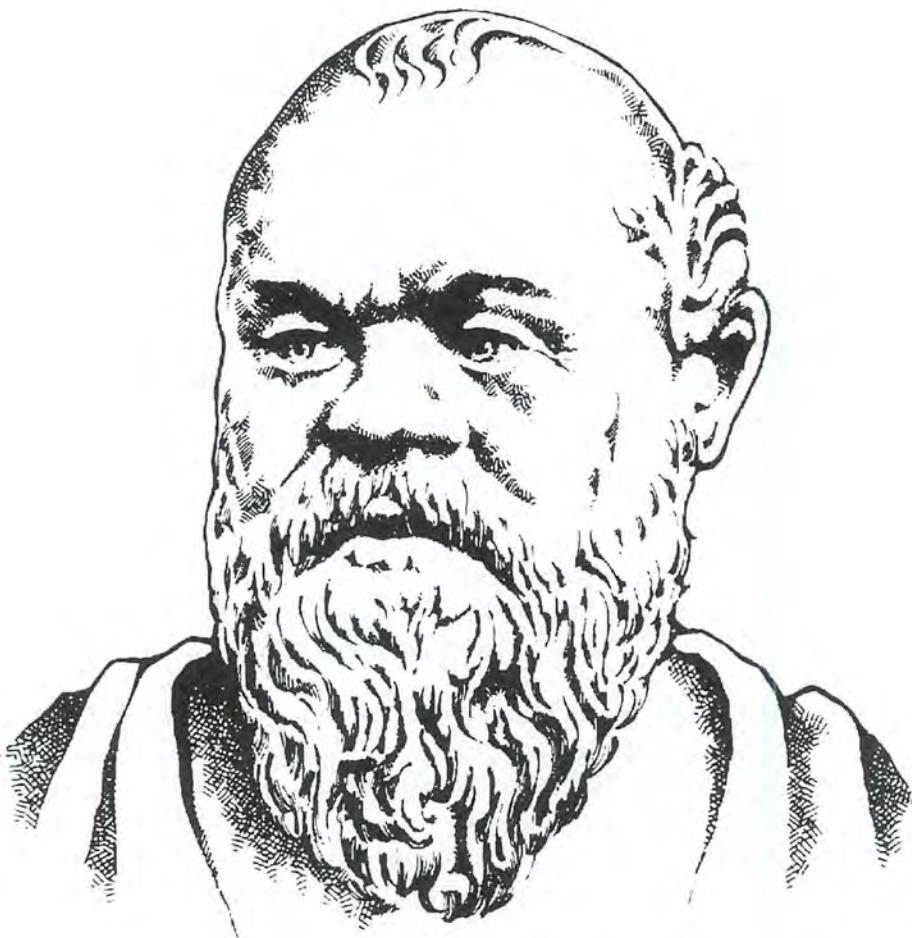
³ D. B. Vitaliano, *Legends of the Earth* (London, 1973), p. 269

⁴ See further examples in D. Cardona, *op. cit.*, pp. 29-34.

⁵ J. G. Frazer in Appendix XI to his translation of Apollodorus, *The Library*, Vol. 2 (Loeb, 1921), p. 394.

⁶ D. A. Mackenzie, *loc. cit.*

⁷ See, for instance, D. Cardona, *op. cit.*, pp. 35-42.



Socrates, who never wrote anything himself, berated the art of writing.
(Illustration by Charles Hogarth.)

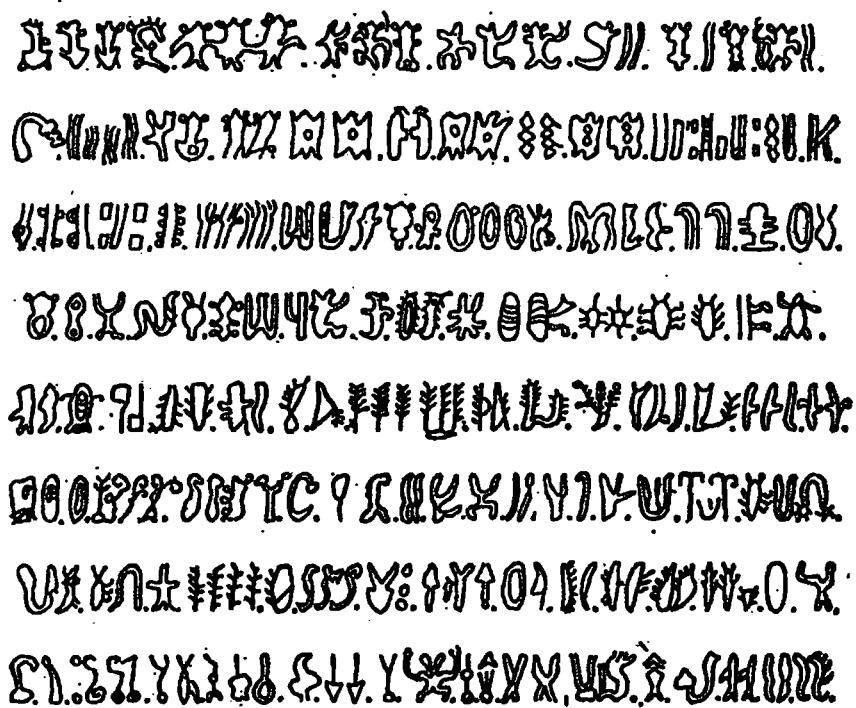
especially so when it comes to the major deities of mankind's ancient past. Forget the idea that the gods were invented as prototypes of benevolence. As we indicated in our previous volume, none of these ancient deities were upholders of law and order. On the contrary, their biographies and histories reveal them to have been thought of being nothing more than a bunch of revelers, indulging in sexual dishonesty, incest, rape, murder, and genocide without equal.¹

"The gods [Alfred de Grazia wrote] are made 'to be' as they 'should be,' friends of ours, of our tribe, or perhaps even of humanity. No matter that they are also believed

¹ *Ibid.*, pp. 43-46.



**Writing, so Socrates avowed, is inferior to orality
Since the written word cannot be made to answer questions.
Shown above: Greek scholar writing on papyrus.
(Illustration by John Green.)**



The *rongorongo* script of Easter Island Which dates no farther back than the late nineteenth century.

to have repeatedly destroyed the nations and that they will do so again."¹

Why, then, did man invent such lawless gods? Or did he? If the characters and actions of the deities of one ancient race or nation were reflected in the divine characters and actions of other far-flung peoples, could it not be that they had all witnessed the same events which were *attributed* to godly actions in the first place? But for all such actions to have been witnessed by one and all, regardless of geographical locality, the events would have to have been portrayed on a screen that would have been visible from just about everywhere. The only such screen available to all of mankind at one and the same time is the sky. The Sun, the Moon, the stars, all act out their drama on the sky and everyone on Earth witnesses their ever-changing spectacle no matter where they may be located.

THE PLANETARY DEITIES

That man's ancient deities resided in the sky—although sometimes on top of mountains—need not be stressed. Down to the present age, regardless of the religion concerned, God is still believed to reside there. But who, or what, were these ancient deities?

Man's ancient deities were not merely celestial, or somewhat vaguely astral, but specific-

¹ A. de Grazia, *Homo Schizo*, II (Princeton, New Jersey, 1983), p. 179.



Hawaiian *mele* singer.

Having no written language, ancient Hawaiians passed their traditional lore down the generations
In the form of *mele*—memorized songs, chants, or poems.
(Illustration by Y. S. Green.)

ally planetary. In other words, they were the anthropomorphized representations of those planets visible to the naked eye.¹ Although most early mythologists were quite cognizant of this verity, there were some among them who attempted to counteract this claim. Prime among them was Donald Mackenzie despite the fact that he, too, recognized the “stellar” association of the ancient Mesopotamian gods.

“From the earliest times of which we have knowledge [he wrote], the religious beliefs of the Sumerians had vague stellar associations. But it does not follow that their myths were star myths to begin with.”²

Mackenzie, however, was wrong on two counts: (1) the “stellar” associations with the ancient deities were anything but vague, and (2) their myths were definitely “star” myths or, to be more precise, planetary, from the very beginning. Unfortunately, many modern mythologists have seen fit to follow in Mackenzie’s footsteps in negating the planetary associations of the ancient deities. Even among those who continue to recognize the cosmic scheme behind mythology, one can still find some who attempt to downplay, if not entirely ignore, its planetary aspect. Such a scholar is W. Gibbon who opted for the stars themselves in lieu of the planets:

“Star lore has often been neglected as a legitimate contribution to comparative mythology...The basic reason for this, I think, has been a failure to distinguish between the star name itself and any myth or myths which accompany it.”³

Even so, as Edwin Krupp pointed out, “without celestial myth, it is difficult to understand how these concepts emerge and why they earn such high status in the symbolic vocabulary of traditional myth.”⁴

The only allowance some modern mythologists make in this respect concerns the Sun. Even the astronomer Carl Sagan found reason to state that: “Our ancestors worshipped the Sun, and they were far from foolish.”⁵ But that the planets, more than the stars or even the Sun, influenced man’s religious systems—nay, *actually gave birth to them*—is borne out by what the ancients themselves had to offer on the subject. That the ancient Israelites worshipped the planet Saturn has already been shown in our previous volume.⁶ What is less known is that the Jews of Rabbinical times continued to believe in planetary influence. It is true that, as is recorded in the Babylonian Talmud, Rabbi Yohanan proclaimed that: “There are no constellations for Israel.”⁷ But Rabbi Hanina, on the other hand, is re-

¹ D. Cardona, *op. cit.*, pp. 51-64.

² D. A. Mackenzie, *op. cit.*, p. 289.

³ W. Gibbon, “Asiatic Parallels in North American Star Lore: Ursa Major,” *Journal of American Folklore*, 77 (1964), p. 236.

⁴ E. C. Krupp, “Sky Tales and Why We Tell Them,” in H. Selin (Ed.), *Astronomy Across Cultures* (London, 2000), p. 20.

⁵ C. Sagan, *Cosmos* (N. Y., 1983), p. 243.

⁶ D. Cardona, *op. cit.*, pp. 205-212.

⁷ Babylonian Talmud, *Shabbat* 156b.

corded as having stated that: “The planetary influence gives wisdom, the planetary influence gives wealth and Israel stands under planetary influence.”¹

Moreover, the Greek god known as Helios is often depicted in Jewish synagogues, and not only as a radiating disk but also in anthropomorphized human form.² Lucille Roussin has additionally noted that the same Greek god is also “frequently found on Jewish magical amulets, often with inscriptions naming the deity and such angels as Michael and Raphael.”³ The *Sefer ha-Razim* even includes a prayer to Helios.⁴ Naturally enough, Roussin understood this as referring to the worship of the Sun god by some ancient Jews.⁵ But that Helios was originally the name of the planet Saturn, *so admitted by the ancient Greeks themselves*, we have already shown in our previous work.⁶

It has also been said that “even when a god or goddess is known to have been associated with a planet, it does not follow that any and every reference to that deity necessarily symbolises something to do with the planet.”⁷ Bob Forrest, who wrote those words, then continued by stating that:

“As Geoffrey Grigson said of Aphrodite and her planet, Venus, the Greeks did not think ‘Oh, there goes Aphrodite!’ every time they set eyes on the Evening Star! The planet merely ‘belonged’ to the goddess. It was symbolically associated with her. Just so, when Ishtar and Nergal feature in the flood story it is as gods, on the same footing as other gods in the story, such as Ea, Enlil and Ninurta, and not as planets. Gods and their planets are not synonymous...”⁸

But this, too, is entirely incorrect and, yes, the probability is that the Greeks did say “oh, there goes Aphrodite” every time they set eyes on the Evening Star. It is not true that the planet Venus merely *belonged* to the goddess. Aphrodite was one of the very names *for* the planet. This is so true that, in the western world, to this day the planets are still called by the names of the Latin deities. Nor was this due to an arbitrary decision; it is merely a continuation of the ancient Roman belief that the planets *were* in fact the gods they venerated. And so, also, with Ishtar, Nergal, Ea, Enlil, Ninurta and all ancient deities. They *were* the planets; they were the names by which the planets were called; and, yes, with but few exceptions, and shorn of embellishments, every reference to these deities *were* references to the planets they not only symbolized, but which they actually stood for. Like Forrest, most modern scholars of mythology are fond of declaring that the gods and their planets are not synonymous.⁹ This constitutes a debate that has gone on for far too long. But the most ancient of extant texts

¹ *Ibid.*

² L. A. Roussin, “Helios in the Synagogue,” *Biblical Archaeology Review* (March-April 2001), pp. 53, 54, 55.

³ *Ibid.*, p. 55.

⁴ *Ibid.*

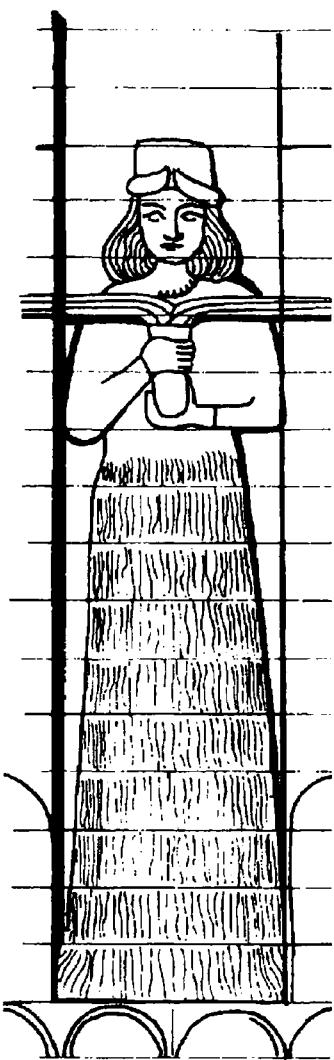
⁵ *Ibid.*, pp. 53 ff.

⁶ D. Cardona, *op. cit.*, pp. 71, 121, 135, 137, 139, 148, 163, 165, 217, 252, 312.

⁷ B. Forrest, *A Guide to Velikovsky's Sources* (Santa Barbara, California, 1987), p. 68.

⁸ *Ibid.*

⁹ See here D. Cardona, *op. cit.*, pp. 47-50.



**Ishtar, the Assyro-Babylonian deity
of the planet Venus.**

Molded brick ornamentation from
the temple of Kara-indash, Uruk.
(Illustration by Marie-Josèphe Devaux.)

prove these critics wrong. As we have shown in our previous work, the earliest known sign for deity in Sumerian, which is the earliest written language that we know of, is strictly that of a star.¹ In fact, as E. Cochrane pointed out, the very determinative for "god," called *dingir*, in Sumerian cuneiform features a star.² And, as K. Szarzynska stated outright: "In the *most archaic period* the determinative *dingir* was associated with *astral deities only*."³ Henri Frankfort, who wrote that "it is possible to claim that the great gods represented the planets,"⁴ had no doubts about this dictum.

And yet, when one remembers the vast number of deities believed in by any one ancient nation that ancient texts enumerate, the mind begins to boggle. In the cuneiform tablets discovered at Ebla alone, there are something like five hundred different deities mentioned.⁵ But even this pales to insignificance when compared to a list of Sumerian deities which includes more than five thousand names.⁶ How can all these deities be made to account for the planets, which are only five in number, that are visible to the naked eye?

This complexity is due to various factors. For one thing, seeing that each planet was imbued with different attributes, each one of these attributes was often encumbered with an additional descriptive name. For another, besides the planets themselves, planetary phenomena were also deified independently of whichever planet produced the phenomena. But mainly the complexity

¹ *Ibid.*, p. 63.

² E. Cochrane, *op. cit.*, p. 16.

³ K. Szarzynska, *Sumerica* (Warsaw, 1997), as quoted by E. Cochrane in *ibid.* (emphasis added).

⁴ H. Frankfort, *Cylinder Seals* (London, 1965), p. 156.

⁵ G. C. Heider, *The Cult of Molek* (Sheffield, England, 1985), p. 96.

⁶ F. G. Bratton, *Myths and Legends of the Ancient Near East* (N. Y., 1970), p. 21.

is due to the fact that the planets were named independently by different peoples who then amalgamated into ever bigger congregations, into tribes, races, civilizations, and finally nations. In the end, the same planets became known by a multitude of names, the same that now bewilder us.

This was recognized in ancient times,¹ even though it was somehow lost on early mythologists such as Frederick Elworthy. Although Elworthy, as well as others of his ilk, well understood the synonymy of many ancient deities, his belief was that this was due to confusion by the ancients in which various deities became reduced to one.² That the confusion is due to mythologists rather than the ancients or their mythology has been shown in our previous work. And yet, with such a vast array of divine names, how are we to know at this late date which divinities represented which planets? Cochrane, for instance, well understood that:

“One of the most difficult problems facing the researcher in comparative mythology concerns the planetary identifications of the ancient gods...That the ancient gods were celestial objects seems obvious; what is not obvious, however, is which gods represent which celestial objects.”³

Yet even here, we are not lost in a turbulent sea. Many of the ancient deities have been identified for us by the ancients themselves. And here is where *comparative* mythology comes in because, when we encounter deities whose identities have been lost, we can compare them and their characteristics to ones whose identities *are* known.

But why, then, have most mythologists not accepted the astronomical lore that lies behind this ancient mytho-historical record? Let us not blame them because, if we accept what the mytho-historical record declares, we will end up believing that the sky that stretched above our ancestors' heads was entirely different, and drastically so, from the one that stretches above us today. And it is this, more than anything else, that has kept most mythologists from embracing the astronomical content of myth. In this, needless to say, they have been restrained by the beliefs of the astronomers who had always been vociferous in proclaiming that the motions, to say nothing of the stations, allotted to the planets as described in myth are physically impossible. With the exception of a few unorthodox scholars, iconoclasts one and all, no one thought to ask whether the arrangement of the Solar System might have been entirely different during man's early sojourn on Earth. Astronomers were adamant in declaring that the Solar System has remained virtually unchanged since its formation.

This, of course, raises yet one more question. How much can we rely on what the ancients stated about the five planets they could pick out against the starry sky with the naked eye? Or, to put it differently, how much could the ancients have known concerning the conglomeration of Sun-orbiting planets we call the Solar System?

¹ See, for instance, C. W. King, *The Gnostics* (1874), p. 83.

² F. T. Elworthy, *The Evil Eye: The Origins and Practices of Superstition* (London, 1895, reprinted in N. Y., 1971), pp. 185-187.

³ E. Cochrane, “Velikovsky and the Problem of Planetary Identification,” *AEON* I:2 (February 1988), p. 89.

ANCIENT ASTRONOMICAL LORE

Put plainly, the ancients were no dummies when it came to astronomy. In many ways, they were more knowledgeable than the scientists of the nineteenth century. Take meteorites, for example: their reality were not scientifically acknowledged until 1803.¹ And yet, the ancients did not only recognize the fact that stones and iron fell from the sky, they also knew that they originated out in space in the realm of the planets. For that reason, meteorites were also believed to be divine, and they were housed to be venerated in temples and other shrines throughout the world.²

What is perhaps less widely known is that even Solomon's temple was associated with a fallen meteorite. Thus: "According to rabbinical tradition, the site where King Solomon built his temple (in the 10th century B.C.) was determined by the fall of the *Eben Shetiya* ('Fire Stone'), which landed during the reign of Solomon's father David."³ This *Eben Shetiya* (variant, *Shetiyah*, or *Even ha-Shetiyah*), also known as the Foundation Stone, was not only preserved, but was later moved into the Holy of Holies of Solomon's temple, on which the ark of the covenant was placed.⁴ And later still, when Herod rebuilt the temple during the Roman period, the *Eben Shetiya* was again incorporated into the new edifice. The ark of the covenant having by then disappeared, this meteoric stone became the most holy object in Herod's temple. On it was placed the fire-pan with burning coals on which incense was ladled on Yom Kippur.⁵

Among various nations, iron meteorites, usually known by the epithet "fire from heaven," unlike stony ones, were on the other hand considered evil and, in Egypt, associated with Set, the antagonist of Osiris.⁶ Among these nations, iron implements became tainted with this taboo, leading to the prohibition of their use in association with holy places and sacred objects. The Old Testament preaches against the utilization of iron in the construction of Yahweh's altar.⁷ Greek and Roman cults also enforced this prohibition.⁸ Thus the Sublician Bridge in Rome, being considered sacred, had to be kept in repair without the use of iron.⁹ The enlightened Hindu priest Raja Vijyanagram would not allow iron to be used in architectural construction within his territory lest misfortune befall his realm.¹⁰

¹ See here D. Cardona, *op. cit.*, p. 83.

² *Ibid.*, pp. 77-82.

³ P. James & N. Thorpe, *Ancient Mysteries* (N. Y., 2001), p. 102; see also L. Ginzberg, *The Legends of the Jews*, Vol. V (Philadelphia, 1968), p. 15.

⁴ L. Ginzberg, *loc. cit.*

⁵ L. Ritmeyer, "The Ark of the Covenant: Where It Stood in Solomon's Temple," *Biblical Archaeology Review* (January-February 1996), p. 72.

⁶ See here D. Cardona, *op. cit.*, pp. 78, 80.

⁷ Deuteronomy 27:5.

⁸ H. B. Walters, *Catalogue of the Bronzes, Greek, Roman and Etruscan, in the British Museum* (London, 1899), p. xviii.

⁹ F. Elworthy, *op. cit.*, p. 221.

¹⁰ *Ibid.*

Ancient astronomical knowledge, however, was not restricted to the fall of meteorites. The ancient Greeks knew the Solar System for what it is. There is no point in repeating the lengthy discussion of this subject which we presented in our previous volume. We will omit here mention of ancient Chinese,¹ Hindu,² and Mesoamerican astronomical knowledge,³ but a brief synopsis of what the Greeks and Babylonians knew concerning the heavens above them will not be entirely amiss.

In about 525 B.C. Pythagoras was already teaching that Earth was a sphere, rather than being flat as had long been believed. In the late 4th century B.C., Herakleides already knew that Earth revolves on its axis,⁴ as so did Plato, Hiketas, and Ekphantos.⁵ Thanks to Aristarchus of Samos (*circa* 270 B.C.), long before Copernicus it was already known that the Sun was at the centre of the Solar System with the planets revolving around it,⁶ and it is unfortunate that the later Claudius Ptolemy thought this ridiculous, favoring Earth, in lieu of the Sun, as the centre of the Solar System.⁷ Eratosthenes (c.273-192 B.C.) even managed to measure Earth's circumference⁸ "with an error of only half a percent."⁹ That most complex motion of Earth's axis known as the precession of the equinoxes, which is one of the mainstays of the Milankovitch theory of ice ages, was discovered by Hipparchus who lived sometime between 146 and 127 B.C.¹⁰ Anaxagoras knew that the Moon shone with light reflected from the Sun, that it harbored mountains, and that the stars were hot like the Sun.¹¹ Hipparchus even calculated the distance of the Moon from Earth "with startling accuracy," involving an error of no more than 0.3 percent.¹² That the planets both rotated on their own axes and moved on their orbits was well known to Plato. Long before Edmund Halley, Seneca had already understood the real nature of comets,¹³ including their periodic return to Earth's vicinity.¹⁴ Nor did the Greeks restrict their knowledge to what they could actually see and measure. As far back as the fourth century B.C., Metrodorus of Chios already knew how absurd it was to believe that Earth was the only world in existence, or that life is to be found only on Earth.¹⁵ Democritus even stated his belief that worlds like Earth were infinite in number, though varying in bulk.¹⁶

¹ For ancient Chinese astronomical knowledge see D. Cardona, *op. cit.*, pp. 92-95, 237.

² For ancient Hindu astronomical knowledge see *ibid.*, pp. 95-96.

³ For Mesoamerican astronomical knowledge see *ibid.*, pp. 83 ff.

⁴ P. James & N. Thorpe, *op. cit.*, p. 106.

⁵ D. Cardona, *op. cit.*, p. 108.

⁶ *Ibid.*, pp. 99-101.

⁷ *Ibid.*, p. 99.

⁸ *Ibid.*, pp. 101-102

⁹ P. James & N. Thorpe, *loc. cit.*

¹⁰ D. Cardona, *op. cit.*, pp. 102-103, 105.

¹¹ *Ibid.*, p. 105.

¹² P. James & N. Thorpe, *loc. cit.*

¹³ D. Cardona, *op. cit.*, pp. 109, 111.

¹⁴ P. James & N. Thorpe, *loc. cit.*

¹⁵ D. Cardona, *op. cit.*, p. 113.

¹⁶ *Ibid.*, p. 112.



In 270 B.C., long before Copernicus (shown above), Aristarchus had already placed the Sun in the centre of the Solar System
(Illustration by Bruce LaFontaine.)



**Claudius Ptolemy—who repudiated the helio-centric system of Aristarchus—
prevented the advance of astronomy for a millennium.**
(Illustration by Bruce LaFontaine.)

It is of course well known that the Greeks based some, but not all, of their astronomical data on the previous knowledge of the Babylonians¹ who, by the second half of the sixth century B.C., had already compiled a catalogue of the stars. They had also determined the synodic revolution of the Moon within a small fraction of the correct value. They knew that each planet had its own particular course with its speed and periods of time subject to change and variation. They knew that Earth was spherical in shape and actually counted it among the planets. They knew that the Moon shone with the reflected light from the Sun and that lunar eclipses were due to the shadow that Earth casts upon the lunar surface. As recorded in a series of cuneiform tablets which are now known as the Babylonian astronomical diaries, these early astronomers had already calculated the length of the lunar months. They recorded lunar and solar eclipses; the dates of first visibility for Mars, Jupiter, and Saturn; the first and last visibilities of Venus and Mercury; the dates of the equinoxes and solstices; the "conjunction" of the Moon and each of the planets with various stars; and various other phenomena.

When it comes to comets, which were not admitted into the family of astronomical bodies until the time of Edmund Halley and Isaac Newton, we find that the Babylonian astronomers, referred to as Chaldeans by Greek classical writers, had already recognized them as such. As Seneca, who lived between 4 B.C. and A.D. 65, had it recorded: "Apollonius [of Myndus] says that the Chaldeans place comets in the category of planets and have determined their orbits"² and that a comet is "a celestial body on its own, like the Sun and the Moon."³

As we noted in our previous volume, the technical data—measurements, calculations—given in cubits and degrees in the Babylonian astronomical diaries are evidence of a sophisticated attempt at reconciling once mysterious motions with numerical allocation, while the glosses contained in the astronomical diaries concerning obstruction of visibility by bad weather on certain nights are indicative of diligent observation.⁴ As Richard Stephenson documented, Babylonian astronomical records are so accurate that, even now, they are proving useful to modern astronomers in calculating the changes in the length of the day.⁵

Of course, it is difficult to ascertain how far back beyond the middle of the seventh century B.C. Babylonian, or for that matter Mesopotamian, astronomy might have stretched. Nor can we now determine what else the Babylonians might have told us concerning the evolution of the Solar System as they may have believed in it. This is because Nabonassar is known to have destroyed previously existing observations in order that exact historical chronology would commence with his own reign as king of Babylon.⁶ No wonder it has been stated that astronomical observations do not reach beyond the reign of Nabonassar.⁷

Even so, where does all this lead us to?

¹ For a full discussion see *ibid.*, pp. 113-116.

² Seneca, *Quaestiones Naturales* VII:4:1.

³ *Ibid.*, VII:16:1.

⁴ See here also D. Cardona, *op. cit.*, pp. 116-119.

⁵ R. Stephenson, "The Skies of Babylon," *New Scientist* (August 19, 1982), pp. 478-481.

⁶ G. Rawlinson, , *The Seven Great Monarchies of the Ancient Eastern World*, Vol. II (N. Y., 1884), p. 208.

⁷ A. Sachs, "Babylonian Observational Astronomy," *Philosophical Transactions of the Royal Society of London*, A, 276 (1974), p. 44.

THE SATURNIAN SUN

The first lesson we learned through our in-depth study of the mytho-historical record in our previous volume is that, as far as our primitive forefathers were concerned, planets were gods. Better said is that their gods were actually the planets. Thus, to them, gods and planets were one and the same.

More than that, we learned that, strange as it may at first seem, the planet we now call Saturn was by the ancients considered to have been the most prominent of the planets.¹ What makes this strange is that, at present, Saturn appears as a mere pin-point of light in the night sky which, unlike Venus, is not easily recognizable by the uninitiated. What is stranger still is that Saturn was referred to as the star of the Sun and even outright as the Sun star.² As the Assyro-Babylonians unequivocally tell us, Saturn was considered a virtual sun.³ What we also learned is that many of the so-called Sun gods of the ancients were actually personifications of the planet Saturn. Donald MacKenzie, for instance, informs us that:

“The sun god was identical with Ninip and Nin-Girsu...resembling Babbar, ‘the shining one’, the solar deity of Akkadian Sippar, whose Semitic name was Shamash.”⁴

But that Ninip (variant, Ninib or Nirig), also known as Ninurta, was the same as the Greek Kronos, the avowed name of the planet Saturn, even MacKenzie knew.⁵ For that matter, Ningirsu, too, was a name of the planet Saturn.⁶ In fact, that the Assyro-Babylonian Shamash, which most mythologists identify as the Sun, was actually the planet Saturn we know from the Assyro-Babylonians themselves.⁷ As Cochrane has demonstrated:

“Saturn’s identification with Shamash is attested in omen texts from the 13th century BC, for example. Saturn is also identified with Shamash in various astronomical reports sent to Esarhaddon and Ashurbanipal, and the cursory language employed by the Assyrian astronomers makes it apparent that this identification was common knowledge and had long since become proverbial.”⁸

There is of course no doubt that, in later days, Shamash *did* stand for the Sun, but this is only because once the Saturnian sun was no longer evident in the sky, its name was bestowed

¹ D. Cardona, *op. cit.*, p. 120.

² *Ibid.*, p. 121; see also D. R. Dicks, *Early Greek Astronomy to Aristotle* (Bristol, England, 1970), p. 167.

³ D. Cardona, *op. cit.*, pp. 122-140.

⁴ D. A. MacKenzie, *op. cit.*, p. 132.

⁵ *Ibid.*, p. 316; for more on Ninip/Ninib/Nirig/Ninurta as Saturn see D. Cardona, *op. cit.*, pp. 62, 124, 125 ff., 128 ff., 131, 212-213, 240, 449.

⁶ D. Cardona, *op. cit.*, pp. 128 ff.

⁷ *Ibid.*, pp. 122-125.

⁸ E. Cochrane, “In Defence of the Saturn Theory,” *Chronology & Catastrophism Review* (2002:1), p. 29; U. Koch-Westenholz, *Mesopotamian Astrology* (Copenhagen, 1995), p. 123 (as cited in *ibid.*); H. Hunger, *Astrological Reports to Assyrian Kings* (Helsinki, 1992), pp. xvi and elsewhere (as cited in *ibid.*)

on the *present* Sun. Mircea Eliade tells us that: "In Indonesia generally, the supreme divinity of the sky has either been amalgamated with or replaced by the god of the Sun; for instance I-lai of the Celebes has been assimilated into a sun god whom, however, the natives see as continuing the work of creation begun by I-lai; it is the same on Timor and innumerable other islands."¹ This usage, however, was not restricted to Indonesia. It was, on the contrary, a procedure that took place all over the ancient world. Thus Eliade could correctly state that, "generally speaking, we find [in early myth] only the palest shadow of what the sun hierophanies once meant, and constant rationalization makes it paler still."² Where we, however, beg to differ is that these sun hierophanies were anything but pale.

That the Sun which presently radiates down upon us was not always the sun of mankind had been known for ages. The writers of the *Popul Vuh*, who attempted to trace the mythological history of their Maya ancestors, did not eschew words when they wrote that:

"Like a man was the sun when it showed itself. It showed itself when it was born and remained fixed in the sky like a mirror. *Certainly, it was not the same sun which we see, it is said in their old tales.*"³

Let us face it, *all* of the major so-called sun gods of the ancients were actually personifications of the *Saturnian* sun. Even Ra, usually presented as the Egyptian sun-god *par excellence*,⁴ turns out to have been imbued with characteristics and motions which are not, and can never be, attributable to the present Sun. Thus Ra was lauded as having abided within a nest of rings or circles; of having been of an emerald color shedding rays of emerald hue; of "going up" on the west and "going down" on the east side of the sky; and of moving *down* at dawn and upstream *at night*.⁵

So, likewise, with Yima who, as his alter ego Vaivasvata, or Vivavant, was honored as a sun-god in the Zoroastrian tradition of ancient Persia.⁶ But that the Persian Yima, the equivalent of the Hindu Yama, personified the planet Saturn is well known.⁷

We could go down the list of various so-called sun-gods only to find out that, originally, they were actually *Saturnian* sun-gods, prime among whom we also find the Greek Helios himself who, like Kronos, who was Saturn, was considered a Titan.⁸ Helios was also identified with Dionysos,⁹ whose *Saturnian* selfsameness need not be repeated. Nor do we need these Titanic and Dionysiac connections in order to make our case because the Classical

¹ M. Eliade, *Patterns in Comparative Mythology* (London, 1996), p. 50.

² *Ibid.*, p. 151.

³ As translated by D. Goetz & S. Morley, *Popul Vuh* (Norman, 1972), p. 188 (emphasis added).

⁴ See here, for instance, J. G. Frazer, *The Golden Bough* (N. Y., 1890/1981), Vol. I, p. 313; J. Viaud, "Egyptian Mythology," *Larousse Encyclopedia of Mythology* (London, 1972), p. 11.

⁵ For full details see D. Cardona, *op. cit.*, pp. 25-26, 132, 133, 134-135, 141-145, 165, 168, 178, 192, 193, 214-216, 230, 231, 152, 267, 268, 269, 270, 433, 437, 443.

⁶ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 16.

⁷ D. Cardona, *op. cit.*, pp. 61, 233, 236, 270, 309, 356, 440.

⁸ M. Eliade, *op. cit.*, p. 143.

⁹ W. A. Heidel, *The Day of Yahweh* (London, 1929), p. 481.

Greeks themselves were quite clear on the issue, presenting Helios as a name for the planet Saturn in no uncertain terms.¹ And so, also, with the Latin Sol.²

This leads us to assume that the Jewish prayers to Helios, and the representations of Helios in Jewish synagogues, which we mentioned earlier, were actually dedicated to Saturn. Can such a claim be verified?

Before we delve deeper into that topic, I merely wish to note that, while the evidence and argumentation presented above might be seen by some as not strong enough on which to construct our thesis, it should be kept in mind that this chapter merely constitutes a *concise* reiteration of what we have already documented in much more detail in our previous volume.

¹ F. Boll, "Kronos-Helios," *Archiv für Religionswissenschaft*, XIX (1916-1919), pp. 343 ff.; Macrobius, *Saturnalia*, I:22:8; for more on Helios as Saturn see D. Cardona, *op. cit.*, pp. 71, 121, 135, 137, 139, 148, 163, 165, 217, 252, 312.

² D. Cardona, *op. cit.*, pp. 122, 139, 148, 165, 441.

The Concept of Deity

THE SOLOMONIC SUN

Depictions of a sun were not only to be found in Jewish synagogues, but at earlier Israelite cult centres, some in the vicinity of Solomon's Temple, and even at the entrance to the Temple itself. A four-tiered Israelite cult stand from Taanach includes figures of a horse, an allusion to chariotry, and a sun symbol.¹ Similar finds were unearthed in Jerusalem itself by that great dame of archaeology, Kathleen Kenyon, in an area she identified as a cult centre dating from the time of Israel's monarchy. What she discovered there were "figurines of horses with *an unnatural disk between their ears*" which were definitely indicative of sun disks.² As Lucille Roussin informs us:

"By analogy to finds in western Asia and Egypt, and through reference to the text of 2 Kings [concerning which see more below], Kenyon concluded that 'horses with a disk on the forehead are miniature models of the Horses of the Sun.' The disk is not unlike the disk that represents Helios in the Sepphoris synagogue mosaic.

"From this same period of Israel's monarchy (seventh century B.C.E.), sun disks with winged scarabs appear on various official seals...even on the personal seal of King Hezekiah of Judah."³

What should be noted is that both the winged disk and the scarab beetle were Egyptian symbols of the god Ra whom we have already had occasion to equate with the *Saturnian* sun. Meanwhile, that a sun-chariot complete with horses was to be found at the entrance to Solomon's Temple is attested to by the Second Book of *Kings*. It is there told that, in his attempt to reform the Israelite religion, Josiah, king of Judah, had occasion to destroy the horses and chariots of the sun-god which had been erected at the entrance to Solomon's Temple.

"And he took away the horses that the kings of Judah had given to the sun, at the entering in of the house of Yahweh [usually rendered as "the Lord"]...and burned the chariots of the sun with fire."⁴

¹ J. G. Taylor, "Was Yahweh Worshipped as the Sun?" *Biblical Archaeology Review* (May-June 1994), p. 58.

² L. A. Roussin, "Helios in the Synagogue," *Biblical Archaeology Review* (March-April 2001), p. 55 (emphasis added).

³ *Ibid.*

⁴ II Kings 23:11.

"This passage," wrote Glen Taylor, "refers to a cultic procession of horses and chariot(s) of the sun in association with the Jerusalem Temple...attributed to 'the kings of Judah' (plural), which suggests a rite with a considerable history."¹

In addition to all that, we find that Yahweh is often invoked in the Old Testament as "Yahweh of Hosts who dwells (among) the cherubim."² And yet, the same is said of Helios in Jewish prayers of the Graeco-Roman period. "Hail Helios," runs such a prayer, "thou God in the heavens, your name is mighty," while an incantation invokes "Helios on the cherubim."³

It is thus evident that, when we come upon such prayers to the Israelite deity as "You who are enthroned on the cherubim, shine forth"⁴ and "Restore us, O Elohim [usually rendered simply as 'God']; let your face shine,"⁵ we can be sure that the god being invoked is one that radiated like a sun. So, likewise, when it is said that "Yahweh came from Sinai, and dawned from Seir upon us; he shone forth from Mount Paran."⁶

Needless to say, Taylor attempted to rationalize these and similar instances by pointing out that, while idolatry had been rampant in the kingdoms of Israel and Judah, it had nothing to do with the official cult of Yahweh,⁷ as so did Hershel Shanks, the Editor of the periodical in which Taylor's article was published.⁸ Like many other champions of the Jewish faith, they are not alone in this since it has always been assumed, as the Old Testament itself proclaims, that the people of Israel, including their kings, had often embraced apostasy without actually abandoning the official religion. Judging by what the Old Testament has to say, however, it really is quite evident that this so-called apostasy had not only been rampant since before the time of the united Israelite monarchy, it seems to have always been, as it remained, the *status quo*. The impression one receives is that, despite the ranting of the so-called prophets and Josiah's attempted reform, the devotion to other gods was generally held to be syncretic with that promoted by the official cult. Even Hezekiah of Judah, described as a king who rejected foreign practices, incorporated the Egyptianized symbols of the winged scarab and the winged sun disk,⁹ both of which epitomized the god known as Ra. It becomes obvious then that this Saturnian symbol was not really viewed as being either foreign or apostate. Moreover, if we are to take the presence of Helios in early synagogues at face value, it seems that there was little change in this syncretism even after the return of the Jews from their Babylonian exile. That the official religion was devoted to Yahweh, there has

¹ J. G. Taylor, *loc. cit.*

² I Samuel 4:4; II Samuel 6:2; I Kings 8:6-7.

³ J. G. Taylor, *op. cit.*, p. 61.

⁴ Psalms 80:2-3.

⁵ *Ibid.*

⁶ Deuteronomy 33:2 (emphasis added).

⁷ J. G. Taylor, *loc. cit.*; see also *idem*, "Yahweh and the Sun," *Biblical Archaeology Review* (September/October 1994), p. 16.

⁸ H. Shanks, "Even-Handed to a Fault," *Biblical Archaeology Review* (November-December 1998), p. 6.

⁹ R. Deutsch, "Lasting Impressions: New Bullae Reveal Egyptian-Style Emblems on Judah's Royal Seals," *Biblical Archaeology Review* (July/August 2002), pp. 42 ff.



Left: Bulla of Hezekiah with Egyptian winged scarab. Right: Bulla of same Judahite king with Egyptian winged disk and with an inscription that reads: "Belonging to Hezekiah, [son of] Ahaz, King of Judah."

never been any doubt. The question that has not always been asked, however, is: Who, or what, was Yahweh?

THE GOD OF THE MIDIANITES

According to Max Dimont:

"In the Old Testament, God is referred to in three ways: as 'Elohim,' which is translated as 'God'; as 'JHVH,' which is translated as 'Lord'; and as 'JHVH Elohim,' which is translated as 'Lord God'."¹

Not quite, since there are other names of "God" given in the Old Testament. In *Genesis*, besides Elohim, the term El Elyon is also used.² In the Book of *Job* "God" is referred to as El, Eloah, and Shaddai besides Elohim and Yahweh.³ Elsewhere, we even find "God" referred to as Sedeq (or Zedek) and Yahweh Sedeq.⁴

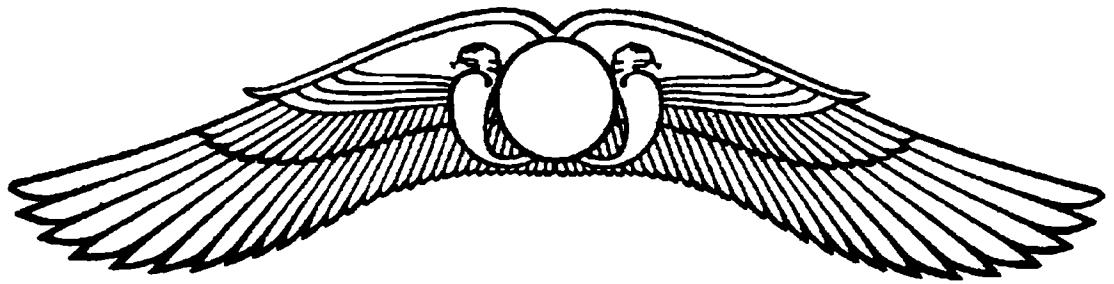
Dimont also made the erroneous statement that Abram (later Abraham) "met" the

¹ M. I. Dimont, *Jews, God and History* (N. Y., 1966), p. 29.

² L. Della Vida, "El 'Elyon in Genesis 14: 18-20," *Journal of Biblical Literature* 63 (1944), pp. 1-9.

³ J. Morgenstern, "The Divine Triad in Biblical Mythology," in *ibid.*, 64 (1945), p. 17.

⁴ R. A. Rosenberg, "The God Sedeq," *Hebrew Union College Annual*, Vol. XXXVI (1965), p. 170.



Winged Egyptian sun disk—symbol of the god Ra.

“Lord God ‘Jehovah’ for the first time” in Haran,¹ and that Jehovah (or Yahweh) became the god of Abraham.² If the Old testament is historically correct, the Israelites were ignorant of Yahweh right up until their enslavement in Egypt. It was Moses who introduced Yahweh to them. Originally, even he had been ignorant of this god. On the other hand, to say that “Moses invented the name ‘Yahweh’,” as Alfred de Grazia did,³ is totally erroneous. Moses was brought in contact with the cult of Yahweh when he resided in Midian, to where he had fled from Egypt after he had slain an Egyptian overseer. While in Midian he married Zipporah, the daughter of Jethro who was the priest of Midian.⁴

That Yahweh was the god of the Midianites is ascertained because his holy mountain, named Horeb, was in the desert in which Moses tended Jethro’s flock. And it was there, at the foot of Mount Horeb, that Moses came face to face with Yahweh. Now it is true that the Book of *Exodus* has Yahweh declaring that he *was*, in fact, the god of the Israelites. “I am the God of thy father, the God of Abraham, the God of Isaac, and the God of Jacob,” he is said to have told Moses.⁵ A few verses later, however, Yahweh is reported to have told Moses: “I am Yahweh: And I appeared unto Abraham, unto Isaac, and unto Jacob, by the name of El Shaddai [usually rendered as ‘God Almighty’] but by my name Yahweh [sometimes rendered ‘Jehovah’ or ‘Adonai’] was I not known to them.”⁶

This, as is now known, is nothing but a Yahwist attempt at equating Yahweh with El Shaddai, but it does not hide the fact that it was Shaddai and not Yahweh that had been the god of the Israelite Patriarchs. This conclusion is not merely derived from the implication in *Exodus*, but is actually ascertained by passages in other parts of the Old Testament. Besides the above quoted verse from *Exodus*, “the name Šaddai appears some forty-eight times in the Hebrew Bible.”⁷ Thus William Albright could rightly conclude that:

¹ M. I. Dimont, *op. cit.*, p. 29.

² *Ibid.*, pp. 40-41.

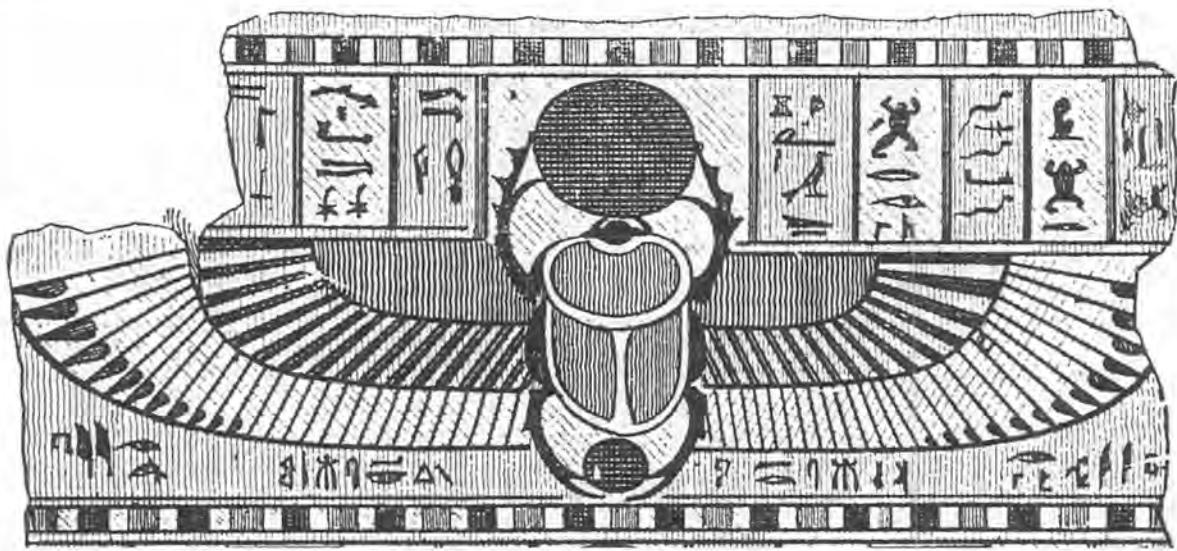
³ A. de Grazia, *God’s Fire* (Princeton, N. J., 1983), pp. 175, 246.

⁴ Exodus 2:21; 3:1.

⁵ *Ibid.* 3:6.

⁶ *Ibid.* 6: 2-3.

⁷ W. F. Albright, “The Names Shaddai and Abram,” *Journal of Biblical Literature*, 54 (1935), p. 180.



Winged scarab—symbol of the god Ra.

"Unless we reject the pertinent Hebrew tradition entirely, we must regard Šaddai or El-Šaddai as the pre-Mosaic name of the chief god of the Hebrews...in the Priestly Document, from the sixth century (but incorporating much older materials), it is always the name of the God of the Patriarchs, the God of Abraham, Isaac, and Jacob..."¹

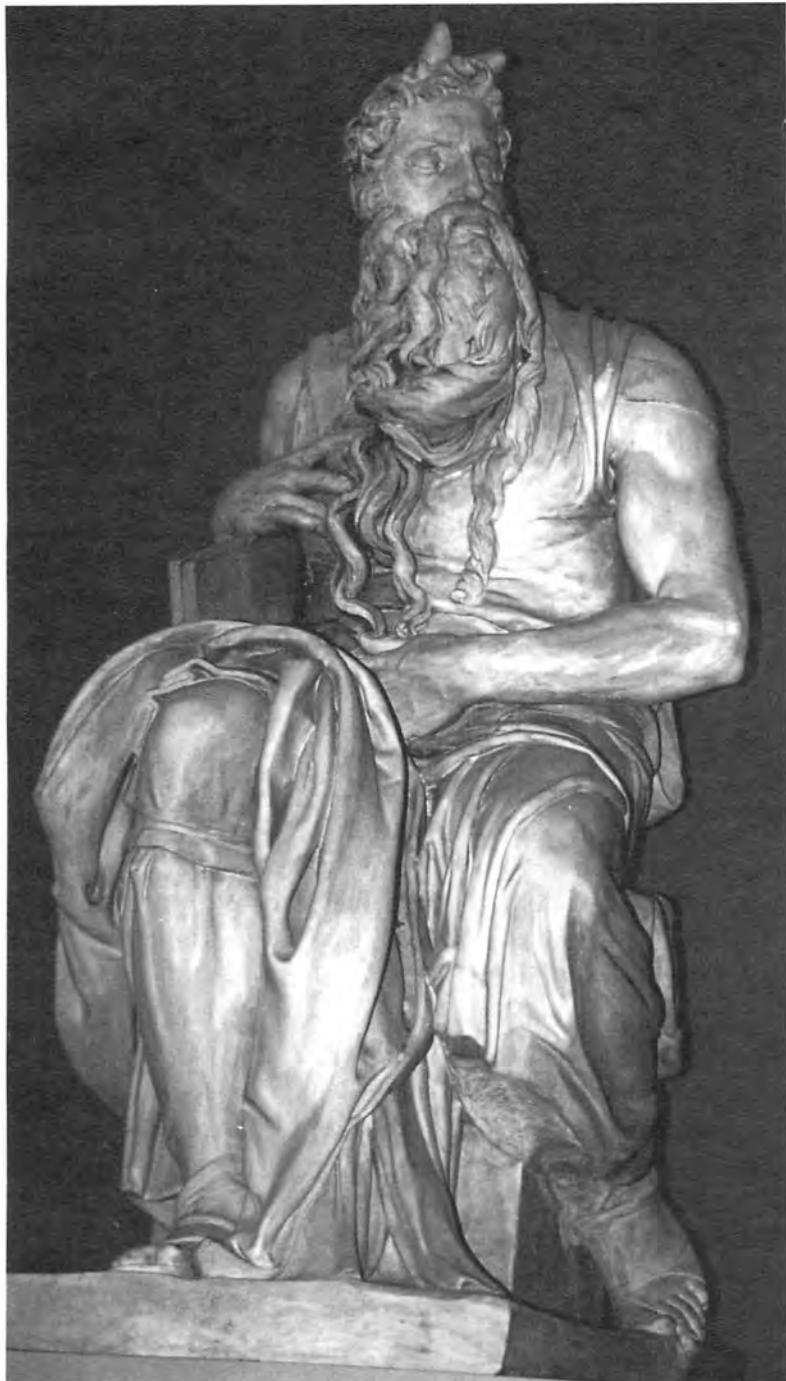
True enough, the name Yahweh appears in various passages of *Genesis* before the time of Moses, but that this is due to Yahwist-inspired insertions at a later time has now been known for quite some time. This is further evidenced by the fact that, while theophoric names which incorporate the element "Yahweh" became quite common, none are met with in the Old Testament prior to the advent of Moses.²

"The important point to note is the absence of the divine name Yahweh as an element in any of these names [in *Genesis*]. Commonly, ancient Semitic names were compounded with the name of a god. But in *Genesis* the only god-name found in personal names is El (for example, Ishmael, Israel, Bethuel)—never Yahweh. Names compounded with Yahweh are not found until Exodus..."³

¹ *Ibid.*, p. 188.

² L. R. Bailey, "Israelite 'El Šadday and Amorite *Bēl Slađe*," *Journal of Biblical Literature*, Vol. LXXXVII, Part IV (December 1968), p. 434.

³ R. S. Hendel, "Finding Historical Memories in the Patriarchal Narratives," *Biblical Archaeology Review* (July/August 1995), p. 59.



Moses, who adopted the Midianite deity as his own and managed to foist him on the enslaved Israelites.

Shown above: Replica of Michelangelo's famous statue.

(Photograph by the author—courtesy of the Victoria and Albert Museum, London, England.)

El-Shaddai remained the god of the Israelite Patriarchs until the advent of Moses who adopted the Midianite deity as his own and managed to foist him on the enslaved Israelites. “The theophany of Sinai [where Moses was said to have received Yahweh’s commandments],” wrote Albright, “then represents the end of the domination of the Shaddai concept and the beginning of the rule of Yahweh.”¹

That Israel’s old god, known as El, Eloah, and/or Elohim, also known as Il or Ilus, was a manifestation of Saturn we have amply documented in our previous volume.² That the worship of a sun, identified as Helios in later times, thus again equivalent to Saturn, was rampant from the time of the divided monarchy down into synagogue times, we have noted above. In between these two eras fits the age of Moses and Yahweh. Does this not, then, make one suspect that Yahweh, too, might have stood for Saturn?

FROM YA TO YAHWEH

While Yahweh *was* the god of the Midianites, it must not be understood that he was only known to this particular tribe. Siegfried Horn tells us that the earliest reference to Yahweh “in any known inscription or text” appears on the Moabite Stone, known also as the Mesha Stele, in which the Moabite king Mesha “makes sport of Israel’s God.”³ But this is only true in so far as the name Yahweh is spelled out in full. Theophoric names incorporating a shortened form of Yahweh are known from other localities.

The case for the occurrence of Yahweh in Eblaite texts remains controversial. Mitchell Dahood, for one, found evidence of it. The Ebla tablets, according to him “show that a thousand years before [the time of Moses]—and this has produced much excitement, and even consternation, among scholars—both Il and Ya, forms equivalent to El and Yahweh, existed in Northwest Semitic personal names.”⁴ Giovanni Pettinato is of similar opinion. The incorporation of the element Ya in Eblaite personal names, he has argued, “might be a short form of Yau, which could be the Ebla prototype of the God of the Hebrews.”⁵ Paolo Matthiae, on the other hand, disagrees. “In my opinion,” he is quoted as saying, “the claimed Biblical associations [with the Ebla texts] are not based on real evidence; the divine name Yahweh does not appear at all in Ebla texts.”⁶

That may be so, but was the name of the god in question always rendered as “Yahweh”? That a form of the name Yahweh appears in Amorite names of Mesopotamia and Syria has been shown by Cyrus Gordon and Gary Rendsburg.⁷ The same god was even known in

¹ W. F. Albright, *op. cit.*, p. 193

² D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 28, 68-69, 135, 141, 142, 148, 151, 204-205, 223-227, 229, 262, 267-268, 283, 305, 429, 433, 434, 435, 437, 443, 448.

³ S. H. Horn, “Why the Moabite Stone was Blown to Pieces,” *Biblical Archaeology Review* (May/June 1986), p. 58.

⁴ H. La Fay, “Ebla: Splendor of an Unknown Empire,” *National Geographic* (December 1978), p. 737.

⁵ M. Mohs, “Reviews,” *Discover* (March 1981), p. 115.

⁶ H. La Fay, *op. cit.*, p. 740.

⁷ C. H. Gordon & G. A. Rendsburg, *The Bible and the Ancient Near East* (N. Y., 1997), pp. 38, 113, 250-251.

Egypt. As Gordon testified, “several Egyptian texts refer to ‘Yhw in the land of the nomads...’”¹

Apart from theophoric names, the god Yahweh was worshipped in Gebal as is indicated by the history of Sanchoniathon. As Stephen Langdon vouched:

“Sanchounyathon [a different transliteration of the name] was undoubtedly a Phoenician writer...as the statement of Porphyry, preserved in Eusebius, asserts. He based his history [according to some] upon Yerombalos, a priest of Yeuo, undoubtedly the god Yaw, who is thus proved to have been worshipped at Gebal as early as 1000 B.C. In a mound north-west of Beisan, modern Ta’annek, has been found a letter of the fifteenth century [B.C.] in cuneiform by Ahi-Yami, which proves that Yaw was [also] a deity of the Canaanites.”²

There are, of course, those who have claimed that Sanchoniathon was himself a Phoenician priest who copied the sacred inscriptions from the inscribed pillars in the temple of Melkart, others say of Ba’al Hamon, at Tyre, when these crashed to the ground in an earthquake. Even so, that Yaw was a form of Yahweh we know from the Jewish colony which existed in the sixth and fifth centuries B.C. at Elephantine in Southern Egypt. Writing in Aramaic, these Jews pronounced the name of their deity as “Yaw.”³ In fact, as Langdon informs us, the god’s proper name seems always to have been Yaw but, for controversial reasons, it was eventually extended to Yahweh, sometimes rendered Jehovah. “A name Yahweh, [or] Jehovah [however], never existed.”⁴ In the northern kingdom of Israel, Yahweh was actually called Yo; in the southern kingdom of Judah, he was called Yahu.⁵ That Ya seems to have been the original form of the name has also been sustained by Godfrey Rolles Driver.⁶ Those who have argued for Ya being merely a *shortened* form of Yahweh, rather than the original *full* name, are therefore incorrect. As Driver pointed out: “It is *a priori* improbable that a name held so sacred as *Yahweh* would be commonly abbreviated” and that “no other Semitic race ever shortened the names of its gods.”⁷

In the meantime there has been much speculation that theophoric names incorporating the element Ya or its equivalents appear in cuneiform texts dating from the last millennium B.C.⁸—despite Driver’s contention to the contrary.⁹

¹ *Ibid.*, p. 145.

² S. H. Langdon, *Semitic Mythology*, Vol. V of *The Mythology of All Races* (N. Y. 1964), pp. 43-44.

³ *Ibid.*, p. 42.

⁴ *Ibid.*, pp. 42-43.

⁵ A. Lemaire, “Royal Signature—Name of Israel’s Last King Surfaces in a Private Collection,” *Biblical Archaeology Review* (November/December 1995), p. 50.

⁶ G. R. Driver, “Jehovah,” *Encyclopaedia Britannica* (1959 edition), Vol. 12, p. 996.

⁷ *Ibid.*

⁸ A. Murtonen, *A Philological and Literary Treatise on the Old Testament Divine Names* (Helsinki, 1952), p. 44.

⁹ G. R. Driver, *op. cit.*, pp. 996-997.

THE MOON AND JUPITER

Various identifications of Yahweh have been attempted. As Burton Bernstein reported: "Some scholars speculate that Yahweh (Jehovah) was once regarded as a moon god and that the early Hebrews were moon worshippers."¹ This has mainly come about because the mountain on which Yahweh supposedly gave Moses the ten commandments is sometimes referred to as Mount Sinai, although also as Mount Horeb. Known to have been named Sinai by Mesopotamian Semites after their god Sin, who is usually identified as the Moon, this mountain is also sometimes referred to as the Mountain of the Moon.

Alfred de Grazia, on the other hand, saw Yahweh as a personification of the planet Jupiter,² as so, also, did David Talbott.³ In this, De Grazia was following J. Ziegler's controversial work in which he claimed that "the original god of the Hebrews at the Exodus was Zeus,"⁴ the god of the planet Jupiter. Ziegler himself derived the identification by claiming that the "Y" in "Yahweh" was originally "Z," the "H" an "E," and the final "H" an "S." Thus Yahweh was rendered by him as Zews or Zeus.⁵ But, by such manipulation of letters, which in the above case is contrary to philological transposition, one can change any name into another.

A better case had earlier been made for a connection with Iupiter, the same as Jupiter, since the prefix "Iu" has more in common with "Ya" than has "Zeus."⁶ As A. Murtonen indicated: "Philologically there seems to be nothing which would absolutely exclude the possibility of such a combination, but too little is known about the relation between these and the Semitic languages to say anything definite on the subject."⁷

De Grazia also came to the conclusion that: "The Etruscan-Roman case, 'Jove [which stands for 'Jupiter']', pronounced 'Yowe' is so close to Yahweh that the Roman Jupiter may be considered as basically the same entity."⁸ Actually, the Latin for the English name "Jove" is "Jovis." And while the "J" is to be pronounced as the English "Y," in this case the sound of the "V" remains the same—thus *Yovees*. Even so, this could still be linked to "Yahweh" in the form of "Yahveh," which is the manner in which the name is sometimes transliterated. Something similar had earlier been stated by de Grazia's mentor, Immanuel Velikovsky, although not with the intention of equating Yahweh with Jupiter.⁹

A different trail from Yahweh to Zeus/Jupiter can be followed through Langdon's identification of the Hebrew god with Hadad.¹⁰ This is because the same Langdon identified Hadad

¹ B. Bernstein, *Sinai: The Great and Terrible Wilderness* (N. Y., 1979), p. 6.

² A. de Grazia, *Chaos and Creation* (Princeton, 1981), pp. 166, 170, 198.

³ D. Talbott, "From Myth to a Physical Model," *AEON* III:3 (October 1993), p. 27.

⁴ A. de Grazia, *God's Fire* (Princeton, N. J., 1983), p. 245.

⁵ J. Ziegler, *YHWH* (Princeton, N. J., 1977), p. 98.

⁶ A. Murtonen, *op. cit.*, p. 65.

⁷ *Ibid.*

⁸ A. de Grazia, *loc. cit.*

⁹ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), pp. 99-100.

¹⁰ S. H. Langdon, *op. cit.*, p. 42.

as Zeus.¹ As the son of Anu,² who was Saturn,³ this makes some sense since Jupiter was also considered the son of Kronos/Saturn.⁴ The same Hadad has also been identified as an alter-ego of the Hittite Teshub,⁵ who himself has been equated with Marduk,⁶ one of the Babylonian names for the planet Jupiter.⁷ All of which would be fine were it not for the fact that Langdon never supplied an iota of evidence for identifying Yahweh with Hadad in the first place.

THE CASE FOR AND AGAINST EA

Rather than being the *son* of Anu, Yahweh has been identified, even if indirectly, with Anu himself. This comes about by following a different trail which was blazed by T. G. Pinches and picked up by Donald MacKenzie:

"Ea, whose name is also rendered Aa, was identified with Ya, Ya'u, or Au, the Jah [i.e., 'Yah' or 'Ya'] of the Hebrews...‘whilst another interesting name, Au-Aa, shows an identification of Jah with Aa, two names which have every appearance of being etymologically connected.’ Jah’s name ‘is one of the words for “god” in the Assyro-Babylonian language’."⁸

Ea, pronounced *Eyah*, identified as Kronos by Berossus,⁹ was the Sumerian god who was called Enki by the Babylonians.¹⁰ All these three deities are identifiable as Saturnian ones.¹¹ This identification can then be strengthened because, in the Babylonian *Enuma Elish*, as Stephanie Dalley noted, the logogram for Ea and Anu is indistinguishable to the point of being ambiguous.¹² Donald MacKenzie went even further by proclaiming outright that "Anu and Ea were originally identical..."¹³ To us this has additional meaning since, as we have seen above, Anu, too, was a personification of the same Saturnian planet.

David Rohl has come up with his own charming theory. When Moses is said to have asked Yahweh who he really was, Yahweh is said to have replied with the words "Eyah asher

¹ *Ibid.*, pp. 37, 64.

² As told in the Anzu Epic. See S. Dalley (trans.), *Myths From Mesopotamia* (N. Y., 1991), p. 208.

³ For Anu as Saturn see D. Cardona, *op. cit.*, pp. 128, 167-168, 225, 229.

⁴ Too well known to require references.

⁵ S. H. Langdon, *op. cit.*, p. 64.

⁶ E. C. Krupp, "Sacred Sex in the Hittite Temple of Yazilikaya," *Archaeology Odyssey* (March/April 2000), p. 44.

⁷ Too well known to require references.

⁸ T. G. Pinches, *The Old Testament in the Light of the Historical Records and Legends of Assyria and Babylonia*, as quoted by D. A. Mackenzie, *Myths of Babylonia and Assyria* (London, 1915), republished as *Mythology of the Babylonian People* (London, 1996), p. 31.

⁹ G. Michanowsky, *The Once and Future Star* (N. Y., 1977), p. 74.

¹⁰ J. Morgenstern, *op. cit.*, pp. 15, 16; D. A. Mackenzie, *loc. cit.*

¹¹ For Ea and Enki as Saturn, see D. Cardona, *op. cit.*, pp. 213, 225.

¹² S. Dalley, *op. cit.*, p. 276.

¹³ D. A. Mackenzie, *op. cit.*, p. 125.

Eyah,” which is usually translated as “I am that I am.”¹ But, as Rohl reasoned, this phrase can also be translated as “I am he who is called Eyah”—or simply “I am Eyah”—which he surmised to be the West Semitic form of Ea.² As he argued: “Scholars have simply failed to recognise that this is another of those characteristic puns in which the Old Testament abounds.”³ The reasonableness of this suggestion is enhanced when it comes to the words with which Yahweh is said to have instructed Moses when he told him: “Thus shalt thou say unto the children of Israel, I am hath sent me unto you.”⁴ As Rohl indicated, this is a somewhat “nonsensical instruction.” Not so, however, if it is rendered as: “Thus shalt thou say to the children of Israel, Eyah has sent me unto you.”⁵

But, while possible, can the philological trail between Ea and Ya, and therefore Yahweh, be maintained? Driver, who referred to those who associated Ea with Yahweh as amateurs,⁶ might have had his own axe to grind, but he has not been the only one to criticize the identification. Murtonen also did. The reason for the latter’s criticism, however, is exactly the opposite to that of Driver who, as noted above, had argued that divine names would not have been shortened and that the name Ya would then have preceded the form Yahweh. In reference to the derivation of “Yahweh” from *Iau* through *Ea*, Murtonen argued that these derivations “are proved to be wrong by the fact that the long form cannot be derived from the shorter ones...”⁷ That the form “Ya” *preceded* “Yahweh” is, however, now widely accepted, and Murtonen’s criticism can therefore be laid to rest. Devoid of evidence, or even an argument, to the contrary, Driver’s accusation of amateurishness, on the other hand, is nothing but a cop-out. The theory that Ya was a form of Ea, which would then equate Yahweh with Saturn, cannot therefore be ruled out.

YAHWEH’S SUN-WHEELED CHARIOT

Cyrus Gordon and Gary Rendsburg were quite adamant when they stated that “Yahwe[h] was never a specialized phenomenon of nature, such as the sun.”⁸ This, however, is contradicted when, as shown above, Yahweh is alluded to as “Yahweh of Hosts,”⁹ usually translated as “Lord of Hosts,” a term that has bewildered many a Biblical student. But that the Hosts stood for the stars can be gleaned from the tale of Creation in *Genesis* where it is stated that “the heavens and *eretz* [usually translated as ‘earth’] were finished, and all the host of them.”¹⁰ Thus, as Glen Taylor deduced, “‘Yahweh of Hosts’ (Yahweh *Tsva’ot*) implies that

¹ Exodus 3:14.

² D. Rohl, *Legend: The Genesis of Civilisation* (London, 1998), p. 207.

³ *Ibid.*

⁴ Exodus, *loc. cit.*

⁵ D. Rohl, *loc. cit.*

⁶ G. R. Driver, *op. cit.*, p. 997.

⁷ A. Murtonen, *op. cit.*, p. 64.

⁸ C. H. Gordon & G. A. Rendsburg, *op. cit.*, p. 85.

⁹ I Samuel 4:4; II Samuel 6:2.

¹⁰ Genesis 2:1.

Yahweh was head of the stars and was to be identified with the most important star of all, the sun.”¹

That this is not idle speculation is supported by the implication that Yahweh was *inter alia* known as “the sun of righteousness,” which is described “with healing in its wings.”² As Frank Moore Cross adduced: “In other words, the winged sun disk is a symbol of the deity bringing salvation.”³ To be sure, the belief that Yahweh was represented as a winged disk had been suggested as early as 1894 by Eugene Goblet d’Alviella.⁴

This, then, is brought home by the additional fact that on a coin from Gaza of the fourth century B.C., Yahweh, so named, is depicted sitting on a winged sun-wheel.⁵ And since the sun-wheel stood for the sun-god’s chariot, the depiction bridges the gap between the fourth century B.C. and the sun-god’s chariot outside the gates of Solomon’s Temple in the time of Josiah, usually dated to the seventh century B.C.

Of this coin, Langdon stated that it “has the only known representation of this Hebrew deity.”⁶ That might, or might not, have been true at the time he penned these words in 1931. But amulets from the Hellenistic period *do* show Yahweh, and on one of them he is actually shown driving a sun-chariot.⁷ There is no point in claiming that these charms bear foreign, that is Hellenistic, influences because, while this *is* true, the fact that Yahweh *was* envisaged as traveling in a sun chariot much earlier than Hellenistic times is again proven by the existence of the above mentioned sun chariot outside the gates of Solomon’s temple. What the Hellenistic coin showing Yahweh in his chariot therefore discloses is a *continuation* of the belief down into Hellenistic times.

THE DIONYSIAC YAHWEH

“It is well known that in the Greco-Roman world,” William Heidel informs us, “Dionysus was frequently identified with Yahweh, the god of the Jews.”⁸ The identity of Dionysos as Yahweh had in fact already been raised by Plutarch sometime in the first century A.D.⁹ There, in Plutarch’s work, some similarities are supplied between the Bacchanalian festivals held in honor of Bacchus, the Roman equivalent of the Greek Dionysos, and certain Jewish celebrations. Among these was mentioned the Jewish Fast held at the height of the vintage during which tables were furnished with all sorts of fruits beneath booths. A few days later, another feast was celebrated which was actually alluded to as a festival of

¹ J. G. Taylor, *op. cit.*, p. 60.

² Malachi 4:2.

³ F. M. Cross, “King Hezekiah’s Seal Bears Phoenician Imagery,” *Biblical Archaeology Review* (March/April 1999), p. 45.

⁴ E. G. d’Alviella, *Symbols: Their Migration and Universality* (N.Y., 1894/2000), p. 207.

⁵ S. H. Langdon, *op. cit.*, p. 43

⁶ *Ibid.*

⁷ P. Tierney, *The Highest Altar* (N. Y., 1989), p. 377.

⁸ W. A. Heidel, *The Day of Yahweh* (London, 1929), p. 476.

⁹ *Ibid.*



Fourth century B.C. coin from Gaza
depicting Yahweh seated on a winged
sun-wheel.

Bacchus. During another celebration, the Jews were wont to call up their god through the use of little trumpets, just as the Argives did during their Dionysia.¹ And, as told in Plutarch's work, "their festival of the Sabbath is not altogether unrelated to Dionysus; for even now many call the Bacchi by the name of Sabboi, and that is the cry they utter when they perform their orgies to the god."² This association with the Jewish Sabbath, the Seventh Day, is then strengthened when we remember that Dionysos himself was referred to as Hebdomeus—"Dionysos of the Seventh Day."³ One may again argue that by Hellenistic times, the Jews would have incorporated various Dionysiac rituals into their own religious festivals, but the feasts and practices enumerated above, to which we could have added, had been observed by Jews from long before that.

That Dionysos was the embodiment of Saturn, we need not repeat. Moreover, Dionysos was also identified as Helios⁴ whom, also, we have already seen identified as the Saturnian sun.

It is therefore safe to state that the winged sun disks on royal Judahite seals, and the association of Helios in Jewish synagogues, are reminiscent of a well understood identity of Yahweh as the embodiment of the Saturnian planetary deity.

¹ *Ibid.*, p. 477.

² *Ibid.*

³ *Ibid.*, p. 484.

⁴ *Ibid.*, p. 481.



Dionysos who, like Yahweh, is shown sitting on a winged and wheeled seat.
From a Vulcan *kylix*.

YAHWEH-ELOHIM

Thirty-eight times in the Old Testament, Yahweh's name is combined with that of Elohim, appearing as Yahweh-Elohim.¹ And then, too, as both Frank Cross and Otto Eissfeldt noted, many of the epithets of the Canaanite El are also applied to Yahweh.² This could be seen by some as a later Yahwist syncretism. It is well known, for instance, how various pagan gods were assimilated into the Christian religion as saints in order not to alienate prospective converts. It could thus be reasoned that the Israelites, or their Yahwist priesthood, saw fit to identify Yahweh as the older Israelite god known as El, Eloah, and/or

¹ A. Murtonen, *op. cit.*, p. 67; see also S. H. Langdon, *op. cit.*, p. 43.

² L. R. Bailey, *op. cit.*, p. 435.



Bacchus—the Roman equivalent of Dionysos.
(Illustration by Thomas Hope.)



Priest of Bacchus—from a fictile vase.
(Illustration by Thomas Hope.)

Elohim, to say nothing of Shaddai, in order to alleviate the transition of devotion from one deity to another. But that this could not have been the case, and that the direct association of Yahweh with El went further back than the time of Moses, is evidenced by a Mesopotamian text which mentions the god Yau^m-ilu—that is, Yah-El—which is usually translated as “Jah (or Yah) is god.”¹ This translation, however, is derived from the fundamentalist argument that El merely meant “God,” whereas it is well known that El was simply the *name* of a god who was also worshipped by the Canaanites and Phoenicians. It is therefore not improbable, as Cross has surmised, that Yahweh could have been a cultic name for El, an idea that Lloyd Bailey found quite plausible.² It then becomes obvious that the god that Moses introduced to his people was the very same one they had been worshipping since the time of Abraham *under a different name*. Whether Moses knew this or not remains a moot question.

That El was the anthropomorphic manifestation of the planet Saturn we know from those very ancients who venerated him. Moreover, in a text discovered among the Dead Sea Scrolls, the god of Genesis is alluded to as “the Lord of the Universe.”³ This appellation is near-identical to that attributed to Shamash/Saturn who was hailed as En-Me-Šar-ra, that is “Lord of the Law of the Universe.”⁴ And, to be sure, that Saturn was the god of the Jews has been known since antiquity.

Needless to say, this revelation does not sit well with modern Jews, even among those who tend to look favorably on the thesis presented in this very work.⁵ This was bad enough when, in the prequel to this work, I restricted my evidence to the Israelite god known as El, Eloah, and/or Elohim.⁶ But I now stand the chance of exacerbating matters by augmenting the argument to embrace Yahweh, because if Yahweh and El were one and the same, as the Jews themselves, to say nothing of Christians, maintain to this day, the identity of Yahweh as a personification of the planet Saturn simply cannot be ignored.

In recent times, even Carl Jung had reached this conclusion when he stated that Saturn, whom he considered Earth’s “second sun,” was “the star of Israel and therefore to some extent identical with Yahweh.”⁷ And, similarly, with other modern authors who could not escape the equation Yahweh = El = Saturn.⁸ The belief, however, is much older than that. “That Yahweh and Saturn were identical was a belief widely accepted in antiquity,”⁹ William

¹ T. G. Pinches, *The Religion of Babylonia and Assyria*, pp. 118, 119, cited by D. A. Mackenzie, *op. cit.*, p. 160.

² L. R. Bailey, *loc. cit.*

³ F. G. Martínez, *The Dead Sea Scrolls Translated* (N. Y., 1996), p. 230.

⁴ M. Jastrow, Jr., “Sun and Saturn,” *Revue D’Assyriologie et D’Archeologie Orientale* (Paris, September 1910), p. 173.

⁵ See here, for instance, M. Bar-Ron & D. Cardona, “Return to the Paleo-Saturnian System,” *AEON* VI:2 (December 2001), pp. 16-27.

⁶ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 204-212.

⁷ C. Jung, *Symbols of Transformation* (N. Y., 1976), p. 401.

⁸ See here, for instance, H. Eggleton, “Some Religious Themes in the light of Velikovsky et alia,” *Society for Interdisciplinary Studies Workshop*, 4:2 (September 1981), p. 11; *idem*, “Did Saturn Explode Twice?” in *ibid.*, 4:3 (December 1981), p. 15.

⁹ W. A. Heidel, *op. cit.*, p. 465.

Heidel was honest enough to admit, even if he himself did not quite accept the identification.

We should not, therefore, be surprised that when it comes to praises, hymns, and prayers to Yahweh, we find that even these were borrowed from those which had been uttered to other deities. Take, as a for-instance, the song that Moses and the Israelites are said to have sung once they had crossed the Sea of Passage. “Who is like unto thee, O Yahweh?” it is reported that they intoned.¹ Is this not similar to the Egyptian praises in the *Text of Tetra* in which Osiris is lauded with the words “there is no god like unto thee”²? And have we not already identified Osiris, like Yahweh, as an anthropomorphism of the same planet Saturn?³ The very same words given in the Israelite hymn—“Who is like unto thee?”—were also addressed to Marduk.⁴ Not only that but, coincidentally or not, the hymn to Marduk, like that of the Israelites at the crossing of the Sea of Passage, is associated with the tempest and the sea:

“Who shall escape from before thy power?
Thy will is an eternal mystery!
Thou makest it plain in heaven
And in the earth.
Command the sea
And the sea obeyeth thee.
Command the tempest
And the tempest becometh a calm...
Lord, thou art holy!
Who is like unto thee?”⁵

Fair enough, Marduk is *not* identifiable as Saturn. At first a Babylonian deity of little importance, Marduk rose to prominence through the political ascendancy of the city of Babylon.⁶ With very little mythology of his own, Marduk’s adherents appropriated those of other deities. Prime among these was Ninurta,⁷ one of the Mesopotamian anthropomorphic representations of the planet Saturn.⁸ As if this was not enough, Marduk also appropriated some of the functions which were originally attributed to Ea,⁹ as well as Enki,¹⁰ his alter ego, both of whom are also identifiable as the Saturnian planetary deity. So that, while there

¹ Exodus 15:11.

² E. A. W. Budge, *Osiris & the Egyptian Resurrection*, Vol. I (N. Y., 1911/1973), p. 136.

³ For Osiris as Saturn see D. Cardona, *op. cit.*, pp. 9, 37, 38-39, 40, 142, 143-145, 147, 149-151, 153, 168, 195-196, 214, 231, 232, 269, 274, 312, 315, 439, 443, 446, 457.

⁴ D. A. Mackenzie, *op. cit.*, p. 161, where Marduk is rendered “Merodach.”

⁵ *Ibid.*

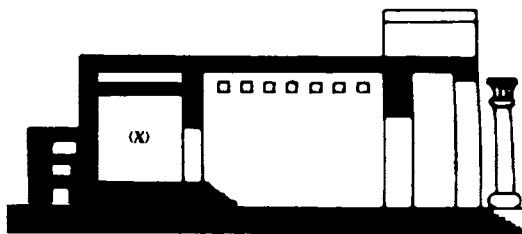
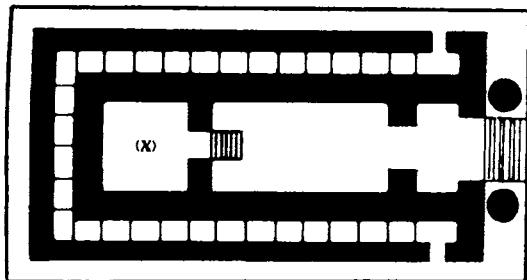
⁶ S. H. Langdon, *op. cit.*, p. 155.

⁷ *Ibid.*, pp. 115, 130.

⁸ *Ibid.*, pp. 134, 135; but see also D. Cardona, *op. cit.*, pp. 62, 124, 125 ff., 128 ff., 131, 212-213, 240, 449.

⁹ S. H. Langdon, *op. cit.*, p. 155.

¹⁰ *Ibid.*



**Floor plan and cross section of Solomon's Temple, showing the Holy of Holies, marked X,
the cubic construction of which bespeaks its dedication to the planetary god Saturn.
(Adapted from plans drawn by Marie-Josèphe Devaux.)**

is no direct evidence for it, it is more than plausible that the praise “Who is like unto thee?”—as applied to Marduk—was originally directed to Ninurta/Ea/Enki/Saturn, the same as the Israelite Yahweh.

That Yahweh was knowingly worshipped as Lord Saturn by the Israelites is evidenced by the very temple Solomon built for his worship. Lawrence Stager was astute enough to realize that Solomon’s Temple, together with the area surrounding it, was patterned after a celestial archetype.¹ He did not, however, go far enough. Hildegard Lewy went much further with her insightful revelation that Solomon’s Temple was dedicated to Saturn,² even though later Biblical scholars have tended to shy away from this revelation.³ Not only were the services in Solomon’s Temple distinguishable as Saturnian rites, its holy of holies was built in the shape of a cube. The telling point here is that, for some now unknown reason, cubic temples were characteristic of Saturnian shrines.⁴ It cannot therefore be said that the worship of Yahweh was tainted with Saturnian elements at a later time.

In passing it should be mentioned that there were other temples dedicated to Yahweh besides the one that Solomon built in Jerusalem.⁵ Ephraim Stern stressed the fact that King Hezekiah of Judah “sought to centralize the worship of Yahweh in Jerusalem” demonstrates “that Yahweh worship was by no means confined to Jerusalem.”⁶

“The Bible itself mentions sanctuaries at sites such as Dan, Shechem, Shiloh, Bethel and Beersheba, and archaeology confirms that there were numerous other sanctuaries

¹ L. E. Stager, “Jerusalem as Eden,” *Biblical Archaeology Review* (May-June 2000), p. 47.

² H. Lewy, “Origin and Significance of the Mâgêñ Dâwîd,” *Archiv Orientalni* 18, pt.3 (1950), pp. 332, 334, 343-344, 351-354, 357, 359-360, 362-365.

³ See here also D. Cardona, *op. cit.*, pp. 210-211, 225, 227.

⁴ H. Lewy, *op. cit.*, p. 69.

⁵ H. Shanks, “The Pomegranate Scepter Head—From the Temple of the Lord or from a Temple of Asherah?” *Biblical Archaeology Review* (May/June 1992), p. 43.

⁶ E. Stern, “Pagan Yahwism: The Folk Religion of Ancient Israel,” in *ibid.* (May/June 2001), p. 23.

outside Jerusalem dedicated to the Israelite national god. A cultic installation dedicated to Yahweh must have existed at Judahite Nebo in Moab during the ninth century B.C.E.: In his stela, Mesha claims to have taken from Nebo the vessels of Yahweh that he later used in a sanctuary dedicated to the Moabite god Chemosh.”¹

Another temple to Yahweh must also have existed at Lachish, “the most important city in Judah after Jerusalem,” to say nothing of others which inscriptions confirm to have existed even outside Israel and Judah—such as at Kuntillet ‘Ajrud, in the Sinai.²

The remains of such a sanctuary has even been unearthed at Arad, in the Negev.³ Despite scholarly disputes as to precisely when it was built and when it was destroyed, it is clear that the Arad sanctuary was in service simultaneously with the Jerusalem Temple and was probably in use during most of the monarchy.⁴ Like Solomon’s Temple, the Arad sanctuary consisted of three parts: a courtyard, a *heikhāl* (main hall), and a *debir* (holy of holies).

With so many sanctuaries to Yahweh—and there may be others that have not yet been discovered—it becomes evident that the worship of this god was not restricted to Jerusalem or the monarchy that reigned from that centre. One, then, has a right to ask why the Hebrews fell victim to the influence of foreign gods? This raises yet another question: Should the worship of gods other than Yahweh by the Hebrews be seen as apostate? As Werner Keller pointed out, the claim that Yahweh was “King above all gods”⁵ can only have meaning “if people believe in other gods as well.”⁶ Psalm 86 states that: “Among the gods there is none like unto thee, O Adonai.”⁷ This, too, would be meaningless unless there *were* other gods with whom Adonai, that is Yahweh as Lord, could be compared. Or why would Yahweh have been said to be “feared above all gods”⁸ or “exalted far above all gods”?⁹ Even in the song of Moses mentioned above, the full verse appears as: “Who is like unto thee, O Yahweh, *among the gods?*”¹⁰

None of these Biblical declarations—and I could have supplied others—make sense unless it was believed that Yahweh was *not* the only god. And why should he have been? There were, after all, other planets besides Yahweh/Saturn. This was so well known that the astral nature of the gods continued to be recognized and debated well into the eighteenth century of the modern era.¹¹

All of this has been discussed in detail for more than one reason, not the least of which is the origin of religion. The god of the Old Testament is the very same god of those faiths

¹ *Ibid.*

² *Ibid.*, p. 24.

³ H. Shanks, *loc. cit.*

⁴ E. Stern, *op. cit.*, p. 23.

⁵ Psalms 95:3, 96:4, 97:7, 9.

⁶ W. Keller, *The Bible as History* (N. Y., 1981), p. 268.

⁷ Psalms 86:8.

⁸ *Ibid.*, 96:4.

⁹ *Ibid.*, 97:9.

¹⁰ Exodus 15: 11 (emphasis added).

¹¹ F. E. Manuel, *The Eighteenth Century Confronts the Gods* (Cambridge, Massachusetts, 1959), pp. 200-201.

which stemmed from that book of books. He is not only the god of the Jews, but also of Christians and Muslims regardless of sectarian bias. After all, even Allah, the Muslim god, is merely a form of the Hebrew Eloah. Known also as Ilâh, or simply Il, Allah has long been recognized as corresponding to the Hebrew El and Elohim.¹ Like the holy of holies in Solomon's Temple, Allah's holiest shrine, the Ka'aba in Mecca, is also constructed in the shape of a cube, as its name in fact implies, one of the main characteristics of Saturnian temples.

Of greater importance to this work, however, is that this does not merely concern Judaism, Christianity, and Islam; it concerns the deities of all other religions, ancient and modern. One should not therefore be confused when we meet the Saturnian deity under a multitude of names. As Frank Manuel shrewdly observed: "Nothing could cause the priests, who doted on rivalry, more concern than a demonstration that *all the gods were merely variant names for heavenly bodies...*"² And while Saturn was not the only planet that was looked upon as a god, the Saturnian deity will be found at the very head of every pantheon the world has ever known. He was the first and for a time the only god of humankind. Manuel declared that "the idea of a god" was "the first human invention" and that "religion and civilization were born together."³ True, but only to an extent, since the Saturnian sun had always been there radiating on mankind and, therefore, did not need to be invented. Where mankind erred was in imbuing this Saturnian sun with life.

For years I had claimed that the concept of deity owes its origin to a star. I will now go further by asserting that the concept of God owes its origin to the planet Saturn. Those of deep religious disposition will hate me for saying as much, but this work is concerned with science and not with faith. If I offend, those offended need read no further.

¹ S. H. Langdon, *op. cit.*, p. 5. (NOTE: Langdon's identification of the Hebrew and Arabic deity as a personification of the Moon is no longer tenable.)

² F. E. Manuel, *op. cit.*, p. 270 (emphasis added).

³ *Ibid.*, p. 155.

Chapter 7

The Boreal Locus

THE SUN OF NIGHT

Very much like the Egyptian Ra, the Assyro-Babylonian Shamash, and other misidentified sun-gods, the Indic god Surya, long believed to have originated as a personification of the Sun, possessed characteristics which do not accord with those of the Sun.¹ Under the name Savitri,² for example, Surya is described as a god of night.³ That Surya was originally a name for Saturn we have also documented.⁴

Half a world away, the Mayan god designated GIII was called “Jaguar Night Sun.” As Ken Moss noted: “It is interesting to consider why a jaguar, a creature of the night, became one of the most significant sun gods among the Maya.”⁵ GIII’s epithet of “Night Sun” is however enough to win him a place among the hierarchy of nocturnal suns we discussed in our previous work.⁶ There, too, the identification of the night sun as the planet Saturn was copiously elaborated.

The Polynesian belief that “night marks the beginning of the world”⁷ did not rise out of ignorance.

THE SOLITARY DEITY

As our previous work also revealed, in the beginning, as far back as man can remember, the Saturnian sun was the only visible luminary in the sky.⁸ There are still societies today, like the Yakima Indians, who still remember that time when their god of beginnings “lived up in the sky *all alone*.⁹”

THE IMMOBILE GOD

Ample evidence has also been provided which indicates that this Saturnian sun had hung immobile in the sky.¹⁰ In the Gnostic *Acts of Thomas*, God is alluded to simply as Rest.¹¹ This is a reference to the planet Saturn, in Hebrew called Shabtai,¹ which name means “the

¹ See here D. Cardona, *God Star* (Victoria, British Columbia, 2006), p. 132.

² M. Eliade, *Patterns in Comparative Religion* (London, 1996), p. 144.

³ *Ibid.*, p. 145.

⁴ D. Cardona, *op. cit.*, pp. 122, 216, 233, 252.

⁵ K. Moss, “Maya Cosmos: A Saturnian Interpretation,” Part II, *AEON* VI:3 (November 2002), p. 72.

⁶ D. Cardona, *op. cit.*, pp. 141-153.

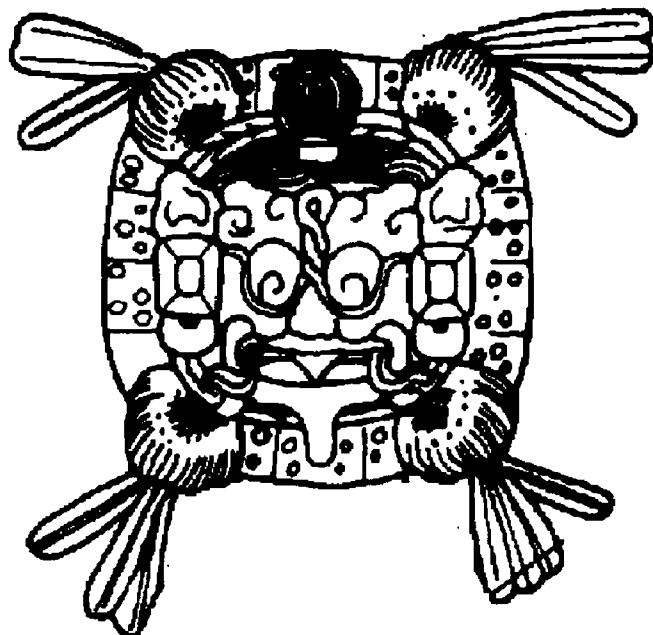
⁷ A. M. Panoff, “Oceania: Society and Tradition,” *Larousse World Mythology* (London, 1972), p. 517.

⁸ D. Cardona, *op. cit.*, pp. 192-203.

⁹ R. Erdoes & A. Ortiz, *American Indian Myths and Legends* (N. Y., 1984), p. 117 (emphasis added).

¹⁰ D. Cardona, *op. cit.*, pp. 204-219

¹¹ W. Barnstone (Ed.), *The Other Bible* (N. Y., 1984), p. 477.



The shield of the god designated GIII, the Mayan Sun of Night.

resting Star or Planet.”² A resting planet does not move. It is from the name of this planet, the god of the Jews (as well as of the Phoenicians),³ that the Hebrew Sabbath, the day of rest, was named. Among English-speaking peoples, this day is still called Saturday, that is Saturn’s Day.⁴

Likewise with Ninurta, one of the Mesopotamian deities of the planet Saturn,⁵ who is referred to as “the steady star.”⁶ A steady star, like a resting one, connotes one without motion. This is further evidenced by the fact that Kaimanu, one of the Akkadian names of the planet, means “to be firmly in place/to be stationary.”⁷

We can thus rest assured that when, on the other side of the world, the Maya remembered a sun that “remained fixed in the sky like a mirror,”⁸ they were referring to the *Saturnian*

¹ W. A. Heidel, *The Day of Yahweh* (N. Y., 1929), p. 465.

² R. H. Stieglitz, “The Hebrew Names of the Seven Planets,” *Journal of Near Eastern Studies* 40:2 (April 1980).

³ And see here also, H. M. Westropp & C. S. Wake, *Ancient Symbol Worship* (N. Y., 1875), p. 53.

⁴ For the same in other languages, see D. Cardona, *op. cit.*, pp. 149-153.

⁵ S. H. Langdon, *Semitic Mythology*, Vol. V of *The Mythology of All Races* (N. Y., 1964), p. 134.

⁶ *Ibid.*

⁷ D. Brown, *Mesopotamian Planetary Astronomy-Astrology* (Groningen, 2000), pp. 68-69, as cited by E. Cochrane, *The Many Faces of Venus: The Planet Venus in Ancient Myth and Religion* (Ames, Iowa, 2001), p. 64.

⁸ D. Goetz & S. Morley, *Popul Vuh* (Norman, 1972), p. 188.



Surya—sun god of the night who was said to have been located at the pole.
(From an 18th century A.D. wooden shield.)

sun. "Certainly," they themselves had it written, "it was not the same sun which we see..."¹

This immobile sun was also remembered by the North American Indians. The Brule Sioux tell that: "At that point [that is 'in the beginning'] the sun did not move yet, did not rise and did not go down, just stood in one place."² And: "The great sun, *anpetu-wi*, still stood idle, fixed in his place from the moment of creation."³

So, also, in Oceania, where there were those who kept alive the tradition that, in the beginning, the Sun never set.⁴

In view of what we learned in our previous work, it is not through a stretch of the imagination when we claim that the belief in these motionless suns owed its origin to the immobile Saturnian sun beneath the feeble radiance of which humankind lived in primeval times.

THE POLAR STATION

The notion of a motionless sun is not unheard of in astronomy. Thus Philip Plait could describe such a sun hanging "motionless" and "ominously" in a "velvety sky" above the surface of a planet orbiting a red dwarf star somewhere out in the Universe beyond our Solar System.⁵ As Plait explains:

¹ *Ibid.*

² R. Erdoes & A. Ortiz, *op. cit.*, p. 131.

³ *Ibid.*, p. 132.

⁴ G. H. Luquet, "Oceanic Mythology," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 464.

⁵ P. Plait, "Under Alien Skies," *Astronomy* (January 2003), p. 40.

"The red dwarf's gravity may be weak, but from such a small distance [6 million kilometers from the star's surface] its effects would be felt. The gravity could cause the planet to be tidally locked with the star, meaning its rotation ('day') and revolution ('year') would be equal in length—from that distance, a little more than nine Earth days....To someone standing on the tidally locked planet's nearside, the star would never seem to rise or set; it would always hang motionless in the sky."¹

This is precisely the same situation we find in the present Earth-Moon mini-system, where the Moon is phase-locked with Earth. For this reason, as viewed from Earth, the Moon always shows the same face. From Earth, we never see the Moon's far side. And, as viewed from the Moon, Earth appears to be perpetually suspended in the lunar sky, an immobile body which never rises and never sets.

This, then, is one way in which the Saturnian sun could have appeared to be suspended in an immobile position in Earth's primeval sky. But, as explained in our previous volume, there is one other way—a peculiar one, to be sure—in which the Saturnian sun could have appeared to be motionless in the sky; and that is to posit a Saturn-Earth system in which the two bodies would have been suspended beneath each other while sharing the same rotational axis. In this case, the Saturnian sun would have appeared to be motionless in Earth's north celestial pole, the same locality which is presently occupied by the Pole Star. As bizarre as such a system appears to be, we have actually embraced it in favor of the phase-locked model simply because that is precisely what is implied in the mytho-historical record. Ancient texts describe the Saturnian deity and his planet as having occupied precisely that locality, the north celestial pole.²

Because this situation is the most difficult to accept as far as the Saturn thesis is concerned; because it has been the most criticized aspect of the model; and because it is of the utmost importance to both the model and the conundrums it serves to solve; we cannot let it pass with a few allusions by way of a concise reiteration. Besides, as difficult as it may be to accept this tenet, it is amazing how much evidence had been missed and how much new evidence continues to be discovered in its favor, even when researching other aspects of the theory.

Isaac Newton Vail was shrewd enough to realize that the terrestrial north was the seat of mythology, even if he did make a mess in interpreting the significance of it all. As he wrote, "humanity's eye was ever turned to a transcendently sacred region in the northern heavens, as the very home and seat of Deity."³ As far back as 1885, William Warren also reached the same conclusion⁴ although, he, too, went somewhat astray in interpreting the multitudinous evidences he himself uncovered.⁵ Frederic Jueneman was entirely correct when he declared that:

¹ *Ibid.*

² D. Cardona, *op. cit.*, pp. 220-247.

³ I. N. Vail, *Celestial Records of the Orient* (Santa Barbara, California, 1972), p. 8.

⁴ W. F. Warren, *Paradise Found* (Boston, 1885), *in toto*.

⁵ See here D. Cardona, *op. cit.*, pp. 226-227, 229, 236-237, 239, 243, 361.



Isaac Newton Vail
(1840-1912)

Despite his misinterpretation of the mytho-historical record,
Vail was shrewd enough to realize that the terrestrial north was the seat of mythology.
(Illustration by Arthur Beeman.)

"The earliest inchoate myths from around the world display a morphological obsession with the north. Everything of any consequence seems to have transpired in the north. More particularly, these events took place in the hyperboreal skies—beyond the north."¹

Like the Saturnian deities of other nations, the Sumerian An and his Akkadian alter-ego, Anu, stood at the head of the pantheon. In all theological lists, he "always stands at the beginning." In later times, the constellation dedicated to him was placed "among the northern polar stars, about which the firmament revolves." At the city of Erech, "sacrifices were made to the polar stars of Anu." The Pole Star itself was even invoked with the words: "O star of Anu, prince of the heavens."² While the identification of An and/or Anu as the planet Saturn need not be repeated, it would not be amiss to re-stress the fact that this north polar association of the god, which continued into the historic period, is merely a reflection of proto-Saturn's former polar station.

Naturally enough, in time, this northern placement of the Saturnian sun attached itself to the very idea of God. According to the Manichaean doctrine, he who was claimed to be the "leader of the realm of light," was located in the north.³ In Iranian texts, this "leader" or "Father of Light" is termed Zurvan.⁴ And that Zurvan, also rendered Zruan, was one of the Iranian names of the planet Saturn is well known.⁵ Yet one more Iranian name for Saturn was Kevan, and he, too, was associated with the pole.⁶

We find the same belief in India, a situation which compelled Ananda Coomaraswamy to note that: "It must not be overlooked that the polar and solar symbolisms are almost inseparably combined in the Vedic tradition."⁷ All of which led E. Butterworth to comment that:

"[The sun of the ancients] is not the natural sun of heaven, for it neither rises nor sets, but is, as it seems, ever in the zenith above the navel of the world. There are signs of an ambiguity between the pole star and the sun."⁸

This ambiguity has naturally risen because, in the present sky, it is the Pole Star that rests in the north celestial seat, a position which our present Sun can never achieve. That this was the locality of the planet Saturn was well understood by the ancient Greeks. Thus Pherecydes described Kronos, who was Saturn, "as dwelling in that part of heaven 'nearest the earth,' ie,

¹ F. B. Jueneman, "The Polar Column: A Physical Model of Myth," *AEON* I:4 (July 1988), p. 37.

² S. H. Langdon, *op. cit.*, p. 94.

³ W. Barnstone, *op. cit.*, p. 673.

⁴ *Ibid.*

⁵ B. L. van der Waerden, *Science Awakening II: The Birth of Astronomy* (Netherlands, 1974), p. 194; see also D. Cardona, *op. cit.*, pp. 265, 310.

⁶ D. N. Talbott, *The Saturn Myth* (N. Y., 1980), p. 143.

⁷ A. Coomaraswamy in R. Lipsey (Ed.), *Coomaraswamy: Selected Papers* (Princeton, 1977), p. 484, as cited by E. Cochrane, *The Many Faces of Venus: The Planet Venus in Ancient Myth and Religion* (Ames, Iowa, 2001), p. 62.

⁸ E. A. S. Butterworth, *The Tree at the Navel of the Earth* (Berlin, 1970), p. 124.

the North.”¹ Strabo was even more specific by placing him in the “home of Boreas”²—in other words, the home of the North Wind.

In China, too, the palace of Shang-te, also known as Huang-ti, was located in the “celestial space about the North Pole,”³ an incongruity which did not escape the notice of the archaeoastronomer Edwin Krupp:

“Among the Chinese, the supreme force in the cosmos was Shang di [the same as Shang-ti], the Lord of Heaven...Shang di was represented symbolically by the sky’s north pole, the spot around which the entire sky seems to circle in an orderly parade.”⁴

Where Krupp went astray was in alluding to the placement of Huang-ti in the north celestial pole as having been symbolic, when the mytho-historical record attests to the universality of the belief, thus raising the pertinent question as to how and why the same symbolism arose in every quarter of the ancient world. What Krupp also suppressed, or was ignorant of, is that Huang-ti, better known as the Yellow Lord⁵ or Yellow Emperor,⁶ was the embodiment of the planet Saturn.⁷

In Japan, too, while not explicitly identifying him as Saturn, the principal deity was nonetheless addressed as the Lord of the Center of Heaven.⁸

The immobility of the Saturnian sun led to various occult beliefs, such as that contained in the *Poimandres*, a Gnostic work attributed to Hermes Trismegistus. There allusion is made to the fixed star called Ogdoas, to which the soul attempts to ascend.⁹ While Ogdoas can be taken as an allusion to the Pole Star, similar Egyptian belief mitigates against it. Thus, as was pointed out in the prequel to this work, the Egyptian dead were believed to ascend into the sky to reach the circumpolar stars associated with Atum/Saturn.¹⁰ This was also the place of Osiris/Saturn,¹¹ specifically known as the god of the north,¹² to whom the deceased was believed to ascend.¹³

¹ F. Lenormant, *Beginnings of History* (N. Y., 1891), p. 531.

² *Ibid.*

³ R. K. Douglas, *Confucianism and Taoism* (London, 1879), p. 278.

⁴ E. C. Krupp, *Beyond the Blue Horizon* (N. Y., 1991), p. 24.

⁵ H. Maspero, “The Mythology of Modern China,” *Asiatic Mythology* (N. Y., 1972), p. 339.

⁶ *Ibid.*, p. 332.

⁷ G. de Santillana & H. von Dechend, *Hamlet’s Mill: An Essay on Myth and the Frame of Time* (Boston, 1969), p. 129.

⁸ E. J. Reed, *Japan: Its History, Traditions and Religions*, Vol. 1 (London, 1880), p. 27.

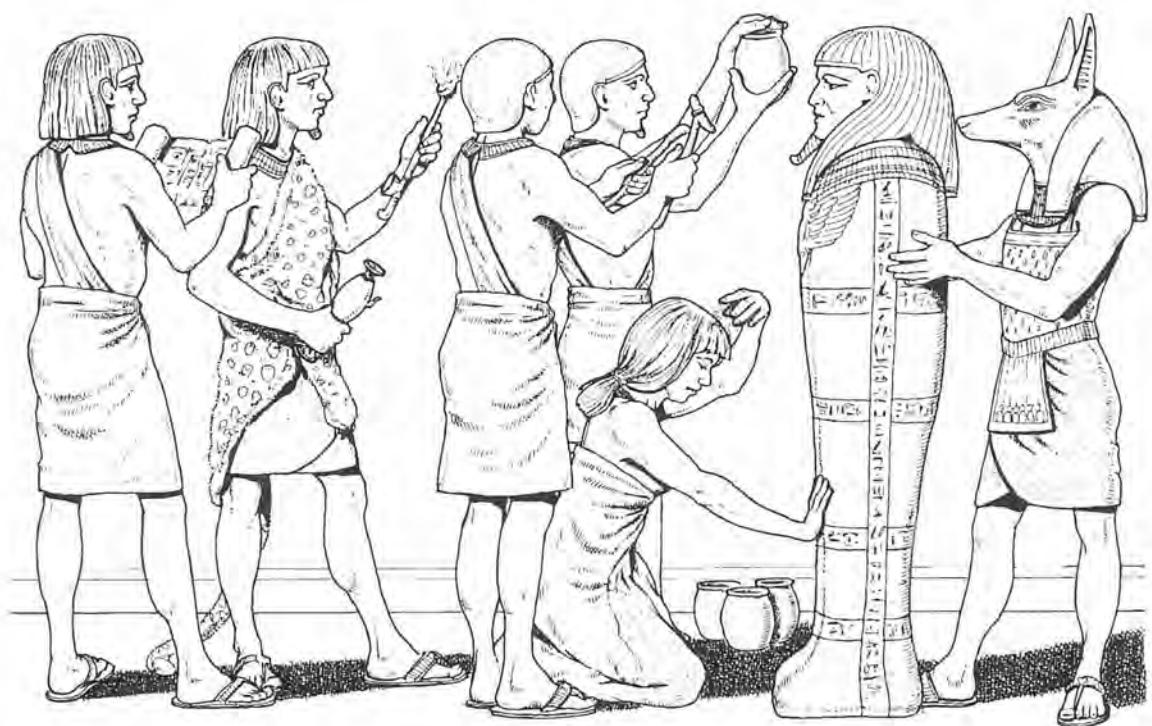
⁹ *Corpus Hermeticum* in W. Barnstone, *op. cit.*, p. 572.

¹⁰ D. Cardona, *op. cit.*, p. 230; see also E. Cochrane, *op. cit.*, p. 170; for Atum as Saturn see D. Cardona, *op. cit.*, pp. 141, 142, 144-145, 165, 168, 192, 193, 195, 214-216, 230-231, 274, 276, 311, 433, 435, 438, 443, 451.

¹¹ For Osiris as Saturn see *Ibid.*, pp. 9, 37, 38-40, 142-147, 149-151, 153, 168, 195-196, 214, 231, 232, 269, 274, 312, 315, 439, 443, 446, 457.

¹² E. A. W. Budge, *Osiris and the Egyptian Resurrection*, Vol. I (N. Y., 1911/1973), p. 37; but see also D. Cardona, *op. cit.*, p. 231.

¹³ For further references see D. Cardona, *loc. cit.*



Egyptian ritual of the royal dead through which the deceased was believed to ascend into the domain of Atum and/or Osiris in the north of heaven among the Circumpolar Stars.
 (Illustration by John Green.)

Other customs which this northernism initiated included the north-south orientation of ancient graves, as in early Egyptian cemeteries.¹ Similar north-south oriented burials include the over 1,200 bodies interred in the Jewish cemetery at Qumran.² That this harkened back to the memory of the north celestial domain of god, to which the soul of the deceased was believed to rise after death, there can be no question.

Thus, also, as we read in the ritual text of the New Year festival in Babylon, the high priest was required to go out into the courtyard and bless the temple known as Esagila three times while facing toward the north.³ This procedure continued to be followed by the High Priests of Israel both in the Tabernacle and, later, in Solomon's Temple,⁴ as also by the later Sabaeans.⁵

Even Jewish sacrifices, as indicated by the Halakhic Letter of the Dead Sea Scrolls, were

¹ *Ibid.*, p. 230.

² M. Broshi & H. Eshel, "Whose Bones?" *Biblical Archaeology Review* (January/February 2003), pp. 31-32.

³ G. de Santillana & H. von Dechend, *op. cit.*, p. 435.

⁴ Leviticus 1:11; W. F. Warren, *op. cit.*, p. 207.

⁵ *Ibid.*, p. 210.

to be conducted "to the north of the camp."¹

There is also not the slightest doubt that New Year festivals originated as Saturnian celebrations.² This is expressly indicated by the Greeks among whom this festival was known as the Kronia, named after the planetary god in question. Among the later Romans, it was referred to as the Saturnalia,³ since the Roman god in question was Saturnus, from which the deity's and the planet's English name is obviously derived. Moreover, Nawroz, the Persian New Year, dedicated to Ahura Mazda, was the day on which the dead were believed to be raised.⁴

There is much more that could have been added here on this particular subject, but in view of the fact that we have various related topics that we have yet to cover, I must not tax the reader's patience.

Even so, taken with what we have presented in our previous volume, to say nothing of what will be disclosed in the following pages, the evidence enumerated above should add cogency to our postulate concerning the north celestial polar placement of the Saturnian sun.

And it is this very locality of Earth's primordial primary that will enable us to solve the various conundrums concerning Earth's past ice ages that we discussed in the first part of this work.

Not only that, but our postulate will also help us solve a few other problems that presently burden more than just one discipline.



Osiris
whose place in heaven was in the north of the sky
in the midst of the Circumpolar stars.

(Photograph by the author, courtesy of the British
Museum, London, England.)

¹ F. G. Martínez, *The Dead Sea Scrolls Translated* (N. Y., 1996), pp. 80, 83.

² D. Cardona, *op. cit.*, pp. 151, 153, 169, 241, 312.

³ M. Eliade, *op. cit.*, p. 398.

⁴ *Ibid.*, p. 403.

Proto-Saturn

LINEAR SYSTEMS

The most remarkable, and the most unbelievable, aspect of the Saturn theory is our hypothesis that Earth had originally been suspended “beneath” Saturn’s south pole, sharing the same axis of rotation with its primary. There was a time when such a linear formation was actually believed to be outside the possibilities of astronomical bodies. But as Halton Arp, an iconoclast among astronomers, has indicated, linear formations in space are now believed to be quite common.¹ “It is a curious and exciting property of the universe,” he reported in 1987, “that a great deal of extragalactic matter appears to be arranged in linear formations.”² These linear configurations include galaxies which stretch across space “in chains.” As Arp disclosed, “chains and filaments of galaxies are very common features of the distribution of galaxies on the sky.”³ In some cases, as much as “4 or more galaxies [are so] aligned.”⁴

Galaxies themselves, moreover, have a tendency to eject “condensations” which also remain linearly aligned.⁵ These “condensations” occur in violent jets of plasma that erupt from the core of the galaxies in poleward directions.⁶ Such jets have been known since 1918, having come to light in a photograph originally published by Heber Curtis which showed a distinctive luminous spike originating from the nucleus of Messier 87 (also known simply as M87, NGC 4486, and/or Virgo A). “It was like a fountain of material emerging from the center of the galaxy,”⁷ Arp himself described it. And it, too, displayed a series of “compact knots of material coming out along the jet like peas in a pea shooter.”⁸ At first ignored by most astronomers, the phenomenon was not allotted the status of reality until the object was confirmed by radio astronomy as “a jet of radio emitting material.”⁹

Similar, but less powerful, jets are also expelled by individual stars. As in the case of galaxies, “condensations,” sometimes referred to as “knots,” which are astronomical bodies

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 401 ff.

² H. Arp, *Quasars, Redshifts, and Controversies* (Berkeley, 1987), p. 146.

³ *Ibid.*, p. 147.

⁴ *Ibid.*

⁵ H. Arp to D. Cardona, October 27, 2000 (private communiqué).

⁶ E. J. Lerner, “The Big Bang Never Happened,” *Discover* (June 1988), p. 75.

⁷ H. Arp, *Quasars, Redshifts, and Controversies* (see above), p. 133.

⁸ *Ibid.*

⁹ *Ibid.*

in their own right, are also strung out linearly along these astral jets. Two prime examples which have been photographed are the stars designated as HH 34 and HD 163296.¹

As claimed in the prequel to this volume, this is incontestable proof that axially aligned linear formations are not only possible, but actually exist in space. They line up along plasma jets ejected poleward, sharing the same axis of rotation as their parent star, exactly as posited for Earth and Saturn in this study. More than that, as has already been shown,² and as we will further indicate in the pages that follow, the Saturnian sun also emanated just such a “jet,” in the form of a sustained Birkeland current, in which Earth was imbedded much like the “condensations” noted above.

Needless to say, galactic jets are colossal emanations that have been calculated to stretch for light years. Astral ones are much less immense, but still beyond the magnitude of our posited Saturn-Earth system. But if these jets can form in such widely different proportions, what is there to keep them from forming in even more modest dimensions? Anthony Peratt spelled it out quite clearly when he stated that discharge phenomena, which is what these cosmic jets amount to, are scalable.³ “The differences in scale...are completely unimportant,” Donald Scott explained. “They all work the same way.”⁴

This is exemplified by the nature of comets, the tails of which are also now known to be composed of plasma.⁵ Like the twisted filaments of Birkeland currents, concerning which see more below, cometary plasma tails are also sometimes “twisty.”⁶ And, very much like galactic and astral jets, cometary tails also exhibit “knots,” described as “small condensations of matter brighter than their surroundings.”⁷

Thus, if plasma jets—which might be a misnomer, in any case—can span the spectrum from galactic to cometary size, what is there to keep them from forming in a stage between these limits?⁸

PLASMA STREAMS AND BIRKELAND CURRENTS

Plasma is what happens to a gas when heated to the point at which the atoms which compose it break apart through ionization. In other words, the electrons separate from the atoms, leaving behind the positively charged ions. Plasmas are therefore streams of separate positively charged ions, negatively charged electrons, and neutral molecules. As such, a plasma is an excellent conductor of electricity.

¹ *Idem*, *Seeing Red* (Montreal, 1998), last two photographs following p. 306; T. P. Greene, “Protostars,” *American Scientist* (July/August 2001), p. 319; D. Cardona, *op. cit.*, pp., 427, 430-431.

² *Ibid.*, pp. 429-457.

³ A. L. Peratt, *Physics of the Plasma Universe* (N. Y., 1992), pp. 48, 51.

⁴ D. Scott, on Intersect, electronic discussion group sponsored by KRONIA Communications, January 9, 2002.

⁵ N. Calder, *The Comet is Coming* (N. Y., 1980), pp. 76, 81; C. Sagan & A. Druyan, *Comet* (N. Y., 1985), p. 170; T. Dickinson, “The Seeds of Life,” *Equinox* (July 1997), p. 65.

⁶ N. Calder, *op. cit.*, p. 85.

⁷ C. Sagan & A. Druyan, *op. cit.*, pp. 162-163, 168-169.

⁸ For more on this subject, see D. Cardona, *op. cit.*, pp. 480 ff.

Out in space, where direct heat is lacking, ionization occurs due to ultra-violet and X-ray radiation. The plasma then develops electric currents together with magnetic fields of its own in response to the galactic field around it.

Once virtually “unknown” in space, which was thought of as a vacuum, plasma is now known to permeate the entire Universe.

“While only a few natural plasmas, such as flames or lightning strokes, can be found near the Earth’s surface, plasmas are abundant in the universe. More than 99% of all known matter is in the plasma state.”¹

Once discounted as a possible spatial influence, interstellar plasma is now spoken of as a matter of fact—as notice when Neil Gehrels and his colleagues proclaim that: “Just as Earth’s atmosphere causes visible starlight to twinkle, interstellar plasma causes radio waves to scintillate.”²

Birkeland currents, on the other hand, consist of a flow of electrons through a stream of plasma, thus carrying electrical current as long as they are traveling parallel to the direction of the magnetic force. The current that is thus generated in the plasma is actually similar to a current flowing through a transmission line. This current is then “pinched” into long filaments which twist themselves into rope-like structures. It is these rope-like filaments that are known as Birkeland currents, named after Kristian Birkeland, the founder of experimental astrophysics. These currents rotate to form a plasma vortex which in fact is nothing but an electrical tornado.

DWARF STARS

Red and brown dwarf stars have now been discovered in *quantum sufficit*. Red dwarf stars—which are mostly white³—have been defined as miniature stars which lack sufficient mass to ignite the nuclear energy stored in the cores of their more massive brethren. Brown dwarf stars are slightly less massive than their red siblings and are, in fact, just as red as the red dwarfs.

The first clear observational image of a brown dwarf, photographed at the Mount Palomar Observatory, was made on October 27, 1994. Verified by NASA’s Hubble Telescope, and named Gliese 229B, it was discovered as a companion to the cool red star Gliese 229, said to be located 19 light years from Earth in the constellation Lepus. At 20 to 50 times the mass of Jupiter, it was at that time “the faintest object ever seen orbiting another star.” According to Shrinivas Kulkarni, its spectrum “is astonishingly just like that of a gas giant planet.” As he added, “it looks like Jupiter, but that’s what you’d expect for a brown dwarf.”⁴

¹ W. Baumjohann & R. A. Treumann, *Basic Space: Plasma Physics* (London; 1999), p. 1.

² N. Gehrels, *et al.*, “The Brightest Explosions in the Universe,” *Scientific American* (December 2002), p. 87.

³ A. MacRobert, “Planet Seen by Sideways Wobble,” *Sky & Telescope* (April 2003), p. 21.

⁴ S. Kulkarni, *et al.*, “Astronomers Announce First Clear Evidence of a Brown Dwarf,” Space Telescope Science Institute Internet press release No. STScI-PR95-48, dated November 29, 2002.

The similarity with Jupiter does not end with Gliese 229B's spectrum. Brown dwarfs were eventually discovered to possess stratified clouds much like those on Jupiter,¹ with weather patterns to match, even though Adam Burgasser is of the opinion that "the weather on these more massive brown dwarfs makes the Great Red Spot [on Jupiter] look like a small squall."² Nor are all brown dwarfs as massive as Gliese 229B. Brown dwarfs the size of Jupiter have been posited.³ As Mark Marley proclaimed: "If you line up a mug shot of Jupiter up with these guys, it is just a very low-mass brown dwarf."⁴

SATURN AS A SUB-BROWN DWARF

If Jupiter can be considered a low-mass brown dwarf star, then why not Saturn? True enough, Saturn is much less massive than Jupiter, but it might not always have been so. Wallace Thornhill, for one, sees no objection in classifying Saturn as a dwarf star.⁵ Just as the demarcation between red and brown dwarfs seems to be arbitrary, so also that between brown dwarfs and giant gaseous planets.⁶ The brown dwarf designated 2MASS 0415-0935 "weigh[s] so little that it falls in the range of what astronomers would usually call a giant planet."⁷ Nor is this the only brown dwarf with such featherweight mass.

Moreover, a new a class of objects have been discovered with such low mass that astronomers are no longer sure what to call them. Knowing what these borderline bodies really are, Frederick Vrba confessed, is not all that obvious "since these objects have the same masses, chemical compositions, and radii as planets."⁸ Alan Boss suggested the term "sub-brown dwarfs" to distinguish them from their more massive siblings. "Give a billion years of cooling and evolution," Glen Schneider opined, "and these objects may be indistinguishable from planets."⁹ As Maria Zapatero-Osorio stated: "With time, they will look like Jupiter and Saturn."¹⁰

Our own position is that Saturn had once been such a sub-brown dwarf star carrying Earth with it in axial tandem as its satellite. Hinted at as early as 1884 by Oskar

¹ R. Talcott, "First Forecast: Cloudy; No Rain," *Astronomy* (December 2002), p. 32.

² "Astronomers Find Jupiter-Like Weather on Brown Dwarfs," *Science Daily*, electronic magazine (May 27, 2002).

³ J. Winters, "A Brief Tour of a Bad Cosmic Neighborhood," *Discover* (April 1998), p. 58.

⁴ *Science Daily* (see above).

⁵ W. Thornhill, "Ionizing the Galaxy," *Thoth* II:1, electronic newsletter sponsored by KRONIA Communications (January 19, 1998), p. 7.

⁶ K. Wright, "When is a Star Not a Star?" *Discover* (January 2002), p. 28; D. Tytell & A. MacRobert, "A New Way to Find Planets," *Sky & Telescope* (April 2003), p. 20; but see also D. Cardona, *op. cit.*, pp. 332-334, where various references are supplied.

⁷ D. Tytell, "The Coolest Brown Dwarf," *Sky & Telescope* (April 2003), p. 27.

⁸ *Ibid.*

⁹ W. Schomaker, "How to Make a Brown Dwarf," *Astronomy* (October 2001), p. 28.

¹⁰ M. Fox, "Rogue 'Gas Balls' in Space Break Rules of Solar System. Astronomers Find," *The Vancouver Sun* (October 6, 2000), p. A13; for more on this subject see also D. Cardona, *op. cit.*, pp. 467-469.

Reichenbach,¹ the idea that Earth had previously been a satellite of Saturn was later postulated by Immanuel Velikovsky.²

Brown dwarfs stars have a tendency to travel alone in space. Surmised to have been ejected from star-forming regions, these so-called embryos are “destined to spend eternity alone as brown dwarfs.”³ As Jeffrey Winters reported: “No one knows how many...roaming brown dwarfs there are in nearby space...”⁴ This is even truer of sub-brown dwarfs.⁵ Taken in consideration with other matters, this has led us to posit that the Saturnian mini-system, Earth included, had probably been wandering out in space outside the domain of the present Solar System. This hypothesis is lent additional weight by one of the most persistent of themes within the universal mytho-historical record which informs us *ad nauseam* that, during the time when the solitary Saturnian sun hung immobile in Earth’s north celestial pole, the Sun was absent.⁶

THE AGE OF DARKNESS

Just as persistent was the ancient belief that, in the beginning, Earth was engulfed in darkness. Again, because this primeval situation is so crucial to our thesis, it would not be amiss to supply additional mytho-historical evidence for its occurrence to what has already been furnished in our previous volume.⁷

The Gnostics, for instance, even believed that the darkness was created, thus giving the impression that it had not always existed.⁸ This late interpretation, however, was derived in a religio-philosophical endeavor to show that everything in existence must have been created by an intelligent designer—which, incidentally, is a concept that seems to be regaining popularity in the modern world even among scientists. But that this primeval darkness had always existed as far as mankind was concerned is borne out by the myths of almost every ancient race and nation.

From India we come across a Vedic hymn which relates that: “In the beginning, everything was like a sea without a light.”⁹ This is what Heinrich Zimmer has alluded to as “the familiar primeval situation” in Hindu belief—there was only water and the starless night.¹⁰

The Finno-Ugrics recall “a time when the universe was plunged in darkness because neither sun nor moon nor stars as yet shone in the sky.”¹¹

¹ O. Reichenbach, *On Some of the Remarkable Features in the Evolution of the Earth* (London, 1884), p. 5.

² I. Velikovsky, “On Saturn and the Flood,” *KRONOS* V:1 (Fall 1979), p. 7; *idem*, *Mankind in Amnesia* (N. Y., 1982), p. 99; for further on this postulate see also D. Cardona, *op. cit.*, pp. 165-178.

³ W. Schomaker, *loc. cit.*

⁴ J. Winters, *lo. cit.*

⁵ *Ibid.*; see also D. Cardona, *loc. cit.*

⁶ *Ibid.*, pp. 274 ff.

⁷ *Ibid.*

⁸ W. Barnstone (Ed.), *The Other Bible* (N. Y., 1984), p. 63.

⁹ *Rig Veda*, X: 129: 3.

¹⁰ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 128.

¹¹ A. Sauvageot, “Finland-Ugria: Magic Animals,” *Larousse World Mythology* (London, 1972), p. 424.

Myths of the age of darkness surface so often among various Amerind tribes that a complete list would bore the reader to death. As the Navajo say: “[In the beginning there] were no sun, no moon, no stars...”¹ This is repeated by the Yuma who also claim that, “when it all began,” there was “only nothingness.” As they say, “there were no sun, no moon, no stars—just darkness.”² So, similarly, with the Tsimshian who are fond of relating that:

“In the beginning...there was only the chief in the sky...But there was no light in the sky—only emptiness and darkness.”³

The Zuni, too, tell the same thing: “At this time the world was still dark; the sun and moon had not yet been put in the sky.”⁴ And likewise among the Cherokee.⁵

Farther south, the Maya also related that, in the beginning, there was no light. All was darkness upon the primordial sea.⁶ They believed in “the lightless time before First Father raised the sky,’ before the appearance of the present Sun.”⁷ As told in the *Popul Vuh*, in the beginning, nothing was yet formed. “Whatever there is that might be,” it is there written, “is simply not there; only murmurs, ripples, in the dark, in the night.”⁸

This belief was so entrenched in the mind of the Mesoamericans that the Aztecs continued to stress it in defense of their religion against the accusations of the Spanish Catholic priesthood, and continues to the present among the Nahua speakers in north and central Mexico.⁹ According to a recorded speech of the Aztec priests, their prime deity, whom they referred to by a term that has been translated as “the Omneity,” had existed since the very beginning in “the eldest Darkness.”¹⁰

In South America, too, it was believed that, in the most ancient times, Earth was covered in darkness. There was no Sun. As in tales from the rest of the world, the Sun, Moon and the stars were created later.¹¹ As recounted in the second chant of the Guarani’s *Ayvu Rapyta*, their creator, Ñamandu, also known as the First One, had originally existed alone “in the heart of the eldest darkness.”¹²

According to the Polynesian islanders of Nauru, at the dawn of creation there was darkness.¹³

In a myth of the Aranda of Central Australia we hear that: “In the very beginning everything was resting in perpetual darkness: night oppressed everything like an impenetrable

¹ R. Erdoes & A. Ortiz, *American Indian Myths and Legends* (N. Y., 1984), p. 39.

² *Ibid.*, p. 77.

³ *Ibid.*, pp. 136, 169.

⁴ *Ibid.*, p. 141.

⁵ *Ibid.*, p. 154.

⁶ K. Moss, “Maya Cosmos: A Saturnian Interpretation,” *AEON* VI:1 (February 2001), p. 79.

⁷ *Ibid.*, Part II, *AEON* VI:3 (November 2002), p. 73.

⁸ E. C. Krupp, *Beyond the Blue Horizon* (N. Y., 1991), p. 42.

⁹ G. Brotherton, *Image of the New World* (London, 1979), p. 65.

¹⁰ *Ibid.*, p. 67.

¹¹ H. Osborne, *South American Mythology* (London, 1968), p. 82.

¹² G. Brotherton, *op. cit.*, pp. 174-175.

¹³ F. Fleming, “Polynesian Paradise,” in *Journeys Through Dreamtime* (London, 1999), p. 102.



Yuma braves of 1862, who still remembered that, "when it all began," there was "only nothingness."

As they say, "there were no sun, no moon, no stars—just darkness."

(Illustration by Peter F. Copeland.)

thicket.”¹

Add all the above to what was recounted in our previous volume, and the theme in question becomes more than merely persistent.

It was because of this environmental condition, more than anything else, that , among the Polynesians, night was believed to mark the beginning of the world.²

THE HABITABLE ZONE

Life on Earth, it has been said, is only possible because of its location—its distance from the Sun—withn the Solar System. Known as the habitable zone, this locality encompasses a narrow orbital belt, which lacks a sharp boundary,³ somewhere between the planets Venus and Mars. “Very simply, the habitable zone is defined as that region around a star where water—regarded by many as essential for life—exists in liquid form on the surface of a planet long enough to nurture the evolution of life.”⁴ Were we closer to Venus, it had once been posited, Earth and all its life-forms would have roasted; closer to Mars, and we would have frozen to death.⁵

The above, however, has never really sat well with certain thinkers, among them Frederic Jueneman whose opinion is that “this business about Earth being in a relatively narrow life zone, at an optimal distance from our particular type star, where climate is balanced between two extremes, is chauvinistic, provincial, and probably nonsense.”⁶ To which he added:

“It may be nonsense because it is assumed *a priori* that this is the way things are in the here and now, and therefore this is the way it was and the way it has to be. This kind of thinking is gradually being eroded away by more recent concepts about the possibilities of life on the outer gas giant planets and their satellites.”⁷

Besides, as Mark Garlick noted:

“The zone’s definition varies from time to time and may not contain strictly all possible life-bearing worlds. For example, the jovian moon Europa is well outside the sun’s habitable zone and yet is regarded by many scientists as one of the two most likely places in the solar system (the other being Mars) where extraterrestrial life might exist.”⁸

Earth’s near-circular orbit was also once believed to be indispensable for life, since an elliptical or oval orbit would swing it too close to the Sun at one end, and too far at the

¹ C. Sagan, *Cosmos* (N. Y., 1983), p. 257.

² A. M. Panoff, “Oceania: Society and Tradition,” *Larousse World Mythology* (London, 1972), p. 517.

³ G. Gonzales, *et al.*, “Refuges for Life in a Hostile Universe,” *Scientific American* (October 2001), p. 63.

⁴ M. Garlick, “No Place Like Zone,” *Astronomy* (August 2002), p. 46.

⁵ But see also D. Cardona, *op. cit.*, pp. 190-191.

⁶ F. B. Jueneman, *Raptures of the Deep: Essays in Speculative Science* (Des Plaines, 1995), p. 12.

⁷ *Ibid.*, pp. 12-13.

⁸ M. A. Garlick, *loc. cit.*



In the beginning, so the Maya believed, there was no light—it was the lightless time before the appearance of the present Sun.

Shown above: The Mayan city of Palenque.

(Illustration by John Green.)

other.¹ A study of elliptical orbits by Darren Williams and his colleagues, however, has more recently indicated that “life on Earth can withstand a lot more tumult than scientists previously guessed” and that a highly eccentric orbit “does not critically compromise planetary habitability.”² Computer modeling of Earth in an eccentric orbit did not change the world’s climatic regime except in very extreme cases. Even when Earth’s eccentric orbit was made to pass inside the orbital path of Venus, Earth did not develop a Venus-like climate. And by the time the same orbit brought Earth within close distance of Mars, the world had absorbed so much heat from its venture beyond Venus that its coldest months were warmer than our present winter months.³

Moreover, heat, in and of itself, is not necessarily reliant on a planet’s distance from the Sun. Neptune, for instance, is much farther from the Sun than Uranus; and yet Neptune is

¹ W. S. Weed, “Circles of Life,” *Discover* (November 2002), p. 44.

² *Ibid.*

³ *Ibid.*, pp. 44, 46.

some 5 degrees Centigrade warmer than Uranus.¹ Additionally, very much like Jupiter and Saturn, “Neptune radiates about twice as much energy as it receives from the Sun.”² More than that, the surface of Triton, Neptune’s satellite, is warming up when, if anything, it should be getting colder. Nor is this process all that slow since the satellite has been measured to have grown warmer between 1989 and 1997.³ Pluto, even farther from the Sun, has been found to go through an atmospheric change in its 248-year orbit. While there seems to be no doubt that it is undergoing a global atmospheric cooling, Pluto’s surface nevertheless seems to be also warming up.⁴

All this has been brought out here to illustrate that a planet—yes, even Earth—can be habitable under quite different conditions than once believed possible. In the absence of the present Sun, out in deep space, Earth’s habitable zone would have been provided by its former primary, that sub-brown dwarf star that was proto-Saturn.

But, despite what we had brought to light in our previous volume, could life *really* have existed in the darkened world we have also been positing?

THE NOCTURNAL ENVIRONMENT

Let me start by repeating what Axel Firsoff stated back in 1967, that “reduced luminosity, as such, is not a barrier to life.” As he explained: “It only means that a planet corresponding to the Earth in surface conditions *will have to orbit the star closer*, as is otherwise likely with lower masses.”⁵ And this, too, is in keeping with our postulate of Earth as a previous satellite of the sub-brown dwarf that was proto-Saturn.

Earth’s primeval age of darkness is explainable by the fact that brown dwarf stars, especially sub-brown dwarfs, emit only a dim light. Speaking of the brown dwarf designated Epsilon Indi B, Alan MacRobert described it as glowing “very dimly” but “red-hot.”⁶ Nor is Epsilon Indi B unique in this respect. Generally speaking, all brown dwarfs “appear as a faint glow, like an ember from a fire that gives off both heat and light energy as it dims.”⁷ And this, too, is in keeping with the mytho-historical record since, despite the darkness there described, the ancients also remembered the Saturnian sun as having glowed feebly in the sky.⁸ Hindu literature even speaks of Brahma/Saturn⁹ as having “moved about like a glow-worm.”¹⁰ Namandu, whom we have already met above as the First One of the South American Guarani and the Mbayá, was said to have been “lit by the reflection of his own inner

¹ V. A. Firsoff, *Life, Mind and Galaxies* (London, 1967), p. 87.

² T. E. Dowling, “Ask Astro,” *Astronomy* (January 2003), p. 72.

³ V. Thomas, “Global Cooling Strikes Pluto,” *Astronomy* (December 2002), p. 24.

⁴ *Ibid.*

⁵ V. A. Firsoff, *op. cit.*, p. 96 (emphasis added).

⁶ A. MacRobert, “The Nearest Brown Dwarf,” *Sky & Telescope* (April 2003), p. 26.

⁷ “Astronomers Find Jupiter-Like Weather on Brown Dwarfs,” *Science Daily*, electronic magazine (May 27, 2002).

⁸ D. Cardona, *op. cit.*, pp. 283-286.

⁹ For Brahma as Saturn see *ibid.*, pp. 131, 145, 196, 216, 232, 233, 284, 309, 439, 446.

¹⁰ *Linga Purana* I:59:6-9.

self,” even “though the sun did not yet exist.”¹ Called Heart of Heaven,² God was described in the *Popul Vuh* as having been surrounded with his own light.

“In the very beginning, there was only the still sky and the still sea. Nothing moved...[There was] no sun or moon to give light. Only God was surrounded with His own light, and He was in the heart of the still, dark sky.”³

The God in question in the above was the Mayan Kukulkan, the Feathered Serpent, whom the Aztecs called Quetzalcoatl, also known as Hurakan, whom we have already identified as a representative of the Saturnian deity.⁴ All of which makes perfect sense because, had there been complete darkness, obviously nothing would have been seen.

Life also adapts to its environment.

“Occasionally someone remarks on what a lucky coincidence it is that the Earth is perfectly suitable for life—moderate temperatures, liquid water, oxygen atmosphere, and so on [Carl Sagan once mused]. But this is, at least in part, a confusion of cause and effect. We earthlings are supremely well adapted to the environment of the Earth because we grew up here.”⁵

But what if Sagan’s “here” had been environmentally different? Take trees for instance. The future development of trees which would need but little sunlight has been suggested by Freeman Dyson and taken seriously by Nigel Calder.⁶ If such trees are thought of as being scientifically possible in the future, why could they not have been possible in the past? In fact, photosynthesis, which is essential for plant survival, responds best to infra-red light. And, in studying various species of ferns, phytochrome 3, which has been described as “a chimaera of the red/far-red light receptor” in plants, “may have had a central role in the divergence and proliferation of fern species *under low-light canopy conditions*.⁷”

This, too, has special meaning for our enfolding scenario because brown dwarf stars are predominantly known for radiating in that very specific wavelength, shimmering in “bright infrared light.”⁸ This was found for the brown dwarf designated Epsilon Indi B, glowing “at a strong 11th magnitude in the 2-micron infrared band.”⁹ So, likewise, with the brown dwarf

¹ J. Bierhorst, *The Red Swan: Myths and Tales of the American Indians* (N. Y., 1976), p. 38.

² D. Cardona, *op. cit.*, pp. 214, 438.

³ D. A. Leeming, *The World of Myth* (N. Y., 1990), p. 60.

⁴ D. Cardona, *op. cit.*, pp. 37, 38-39, 59, 312, 314-317, 435-437, 438-439.

⁵ C. Sagan, *op. cit.*, p. 24.

⁶ N. Calder, *The Comet is Coming!* (N. Y., 1980), p. 104.

⁷ H. Kawai, *et al.*, “Responses of Ferns to Red Light are Mediated by an Unconventional Photoreceptor,” *Nature* (January 16, 2003) as retrieved from an Internet posting dated January 25, 2003 (emphasis added); for more on photosynthesis during the Saturnian age of darkness, see D. Cardona, *op. cit.*, pp. 291-293.

⁸ *Science Daily*, electronic magazine (May 27, 2002).

⁹ A. MacRobert, *loc. cit.*

designated 2MASS 0415-0935, which has been found to be glowing “with only two millionths of the Sun’s luminosity—*almost entirely in the infrared*.¹

Harlow Shapley, who was not exactly supportive of unorthodox scenarios, had even once theorized that life could originate and evolve *on* a brown dwarf star. Believing at the time that brown dwarfs contain liquid water, he reasoned that “organisms might evolve to be able to exploit the deep infrared radiation given off by such an object, both for photosynthesis and perception, the latter through eyes equipped for infrared vision or thermal sensors like those of snakes.”²

“The imagination boggles at the possibilities of self-heating planets that do not depend, as we do, on the inefficient process of getting our warmth through radiation from a hot source, the sun, millions of miles away.”³

Needless to say, the idea of life existing *on* a brown dwarf is now realized to be impossible. By the twenty first century, however, interest shifted to planets *orbiting* such dwarf stars. “It was always thought that any planet orbiting a red dwarf would be an extremely unlikely place to find life,” Ken Croswell noted in 2001. “But it now looks as though these dim red suns could harbour most of the Galaxy’s life-bearing worlds.”⁴

Or, as David Soderblom put it:

“If you’d asked me a few years ago, I would have said that red dwarfs have a very low probability of having life-bearing planets. But given what we’ve seen here on Earth and the rather hostile conditions under which life can flourish,⁵ I would say it’s pretty good odds.”⁶

As discussed in our previous work, Croswell supplied a very detailed scenario concerning the possibilities of a life-sustaining planet orbiting a red dwarf star. There we also showed that this scenario can be adapted to favor a brown instead of a red dwarf, with special advantages in a planet sharing its axis of rotation with such a brown dwarf over one in orbit around it.⁷ Nevertheless, one may still ask: Is there any evidence here on Earth that would speak in favor of ancient life having existed in a perpetual nocturnal environment? Needless to say, one would first need to know what to look for. And this is not going to be easy since what was, no longer is. Even so, clues do surface now and then, among them the following:

¹ D. Tytell, *loc. cit.*

² D. Darling, “Life on Brown Dwarfs,” at: <http://www.angelfire.com/on2/daviddarling/brownwarflife.htm> (November 2002).

³ H. Shapley, “Crusted Stars and Self-Heating Planets,” ac quoted by D. Darling, *loc. cit.*

⁴ K. Croswell, “Red, Willing and Able,” *New Scientist* (January 27, 2001), p. 29.

⁵ And see here D. Cardona, *op. cit.*, pp. 286-290.

⁶ K. Croswell, *op. cit.*, p. 31.

⁷ D. Cardona, *op. cit.*, pp. 343-350.

According to David Archibald, the anatomy of the earliest mammals “suggests that they were largely nocturnal.”¹ One may think that this was because night-time foraging was safer for these creatures who had to compete for food with much larger carnivores. “Mammals inherited the terrestrial realm for larger vertebrates after the extinction of dinosaurs,” Archibald himself maintains. But, as he went on: “During the reign of the dinosaurs, however, mammals were small, mostly nocturnal or crepuscular creatures skulking in the underbrush or in the overarching canopy.”²—Which would make sense were it not for the discovery that dinosaurs, too, were nocturnal creatures. As Dan Eatherley disclosed:

“The gates to Jurassic Park have opened a little wider, with the recreation of an eye protein from an archosaur, a reptile that died out 240 million years ago. The archosaur protein works well in low light, suggesting that these creatures may have hunted at night.”³

The eye protein in question is rhodopsin which, in modern animals, acts as a molecular switch in response to light of a particular wavelength. Studies of the DNA sequence of rhodopsin genes found in the archosaurs’ modern-day descendants—such as alligators, birds, and fish—have allowed researchers to trace back the evolutionary process to the most likely DNA sequence of the archosaur gene.⁴

“Surprisingly, the archosaur rhodopsin functioned well at low light levels, more like the rhodopsins of modern mammals than of reptiles. That suggests the ancestral archosaur had good night vision and may even have been nocturnal, contradicting the generally accepted view that they would have been active by day, like most birds and crocodiles.”⁵

More than that, in keeping with the dim red light radiated by brown dwarf stars, the re-created archosaur rhodopsin was found to respond best “to slightly redder colors than the light that most modern vertebrates sense.”⁶

Fine, archosaurs are not exactly dinosaurs; they are ancient reptiles that *gave rise* to dinosaurs. But, in the absence of their more massive descendants, who would they have had to fear to send them foraging at night?

THE PROTO-SATURNIAN PLASMASPHERE

There was a time, not so long ago, when astrophysicists had close to no use for electricity, let alone plasmas, in astronomy. But then, all of a sudden, astronomers started talking about a near-Earth plasma environment, plasmaspheres, plasma convections, and

¹ J. D. Archibald, *Dinosaur Extinction and the End of an Era* (N. Y., 1996), p. 27.

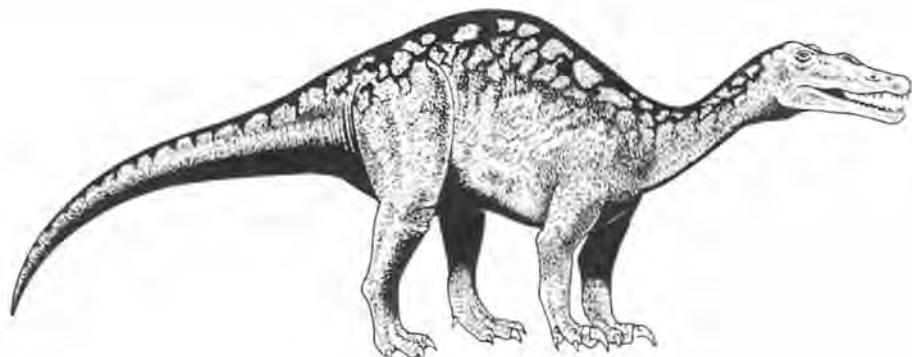
² *Ibid.*, p. 94.

³ D. Eatherley, “Ancient Eye Resurrected,” *New Scientist* (September 28, 2002), p. 19.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ K. A. Svitil, “The Nocturnal Reptiles of Triassic Park,” *Discover* (January 2003 Special Issue), p. 13.



Were dinosaurs nocturnal animals?
Their ancestor, the archosaur, seems to have been.
Shown above: Baronyx, a descendant of the archosaur.
(Illustration by Bob Giuiani.)

their associated Birkeland currents.¹ But what, exactly, is a plasmasphere? Wallace Thornhill put it in a nutshell when he described plasmaspheres as one characteristic of plasmas in that they tend to shield bodies embedded in them by creating what is known as a Langmuir sheath around them.²

Our own Solar System is encased in such a plasmasphere, one that is centered on the Sun and more popularly known as the heliosphere.³ Venus, it was eventually discovered, also possessed a plasmasphere in the form of a cometary tail that spread close enough to "tickle the Earth when the two planets are in line with the Sun."⁴ So, also, Jupiter, which is now known to be surrounded by a plasma sheet which, like the Sun's electric current sheet, lies along Jupiter's magnetic equator.⁵ And, needless to say, Saturn, too, has its own plasmasphere.⁶

What, then, of Earth? The plasmasphere in which our own world is embedded was predicted by Ralph Juergens in 1972.⁷ This was also taken up by Wallace Thornhill,⁸ and,

¹ ADS Abstract Service—see ADS Abstracts in *ibid.*, p. 16.

² E-mail message forwarded by David Talbott to the KRONIA electronic discussion group, February 26, 1997.

³ A Yee, "Sir Fred Hoyle Vindicated After 60 Years," *SIS Internet Digest* (1998;2), p. 12; see also D. Cardona, *op. cit.*, pp. 299-300.

⁴ W. Thornhill, *The Electric Universe* (Beaverton, Oregon, 1997), p. 18.

⁵ NASA release as reported by W. Thornhill, "Did They Really Say That?" *Thoth III:1*, electronic newsletter sponsored by KRONIA Communications (January 24, 1999), p. 12; see also, *New York Times* (May 29, 1999); *New Scientist* (August 7, 1999), pp. 26-31.

⁶ W. Thornhill, *Chronology & Catastrophism Review* (2000;1), p. 94.

⁷ R. Juergens, "Reconciling Celestial Mechanics and Velikovskian Catastrophism," *Pensée IVR II* (Fall 1972), p. 12; see also D. Cardona, *op. cit.*, p. 302.

⁸ W. Thornhill, *loc. cit.*

eventually, by mainstream astronomy.¹ By the year 2000, it had even been “photographed.”²

“[A team from the Southwest Research Institute in San Antonio, Texas, including researchers from Los Alamos National Laboratory] used the medium-energy neutral atom (MENA) instrument aboard the IMAGE satellite to watch the first global images of the plasma sheet, a slab of plasma that reaches tailward through the Earth’s magnetic field, or magnetosphere. The observations revealed that the solar wind fills the sheet with high-density plasma that is later squeezed toward the Earth when the interplanetary magnetic field orientation points southward.”³

There was, therefore, nothing unscientific when, back in 1976, Ralph Juergens proposed to this writer that the primeval Saturnian system with which we are involved had resided within a plasma sheath,⁴ a proposal that was also independently offered by Roger Ashton in 1980/81.⁵

It was this very plasmasphere, according to both Ashton and Thornhill, that enabled the Saturnian sun to bathe all latitudes of Earth in a universal warmth. Being opaque,⁶ the interior of this shell would have reflected back Saturn’s radiation towards all terrestrial latitudes, so that all parts of Earth would have retained very much the same climate at sea level.⁷

This much has been reiterated from our previous volume because it, too, is going to help us in solving the mystery of Earth’s ice ages.

VARVES AND THE SUNSPOT CYCLE

The above discussed situation would have made for a world with only one spring-like season. This was discussed at length in our previous volume.⁸ During the writing of this second volume, however, an objection has been raised by Mike Tweste concerning our hypothesis that the Saturnian system had originally been traveling alone through space outside the domain of our present Sun.⁹ The evidence Tweste presented, however, bears even more directly on our additional postulate that, during this primordial time, Earth would have enjoyed the mildness of a perpetual balmy season. This evidence involves the so-called

¹ K. A. Svitil, “Ring of Fire,” *Discover* (September 2000), p. 26.

² *Ibid.*

³ As posted on the Internet by the American Astronomical Society, December 4, 2002.

⁴ D. Cardona, *op. cit.*, p. 298.

⁵ *Ibid.*, pp. 297-298.

⁶ *Ibid.*, pp. 298, 303.

⁷ R. Ashton, “Research Memorandum #3: Notes Relevant Mainly to Saturn Studies” (deposited with the author, dated January 1, 1980), p. 2.

⁸ D. Cardona, *op. cit.*, pp. 351 ff.

⁹ M. Tweste, “Varves, Colors, and Bok Globules,” *AEON* VI:4 (August 2003), pp. 5-6.

sunspot cycle and the signature it is believed to leave in varves. The sun on the duration between periods of high sunspot activity.

"As everyone knows [wrote Twose] the sunspot cycle averages a little years in length. It is apparently controlled by the motions of the planets, with Jupiter possessing the major influence."¹

This cycle is believed by some to cause changes in terrestrial weather including the amount of rain that falls during each of its successions. As the rain runs off into lakes, it tends to form stratified layers of silt known as varves, the thickness of which varies according to the amount of rain that falls. In time, varves turn into sedimentary rocks which then supply geologists with a record of the stratification that is believed to indicate the cycle of solar activity as it would have occurred while the varves were being formed. Twose presents us with the table which purportedly shows the "average length of the sunspot cycle that has been worked out through this method in the sedimentary rocks of past geologic ages..."² The table, reproduced below, is taken from Frederick Zeuner³ upon whose work Twose relied.

Pre-Cambrian	11.3 years
Superior Devonian	11.4 year
Inferior Carboniferous	11.4 years
Eocene	12.0 years
Oligocene	11.5 years

"It seems very unlikely," Twose then tells us, "that an Earth orbiting Saturn outside the Solar System would have experienced an 11/12-year weather cycle as it does at present and as it apparently did in the past."⁴

Apart from the fact that, in our model, Earth is not hypothesized to have orbited Saturn, but that, instead, it was in axial alignment with its primary, the above does sound like a valid objection. But, as I pointed out to Twose at the time,⁵ it should first be understood that evidence of the sunspot cycle in relation to the geologic strata, as presented above by Twose, is not based on Zeuner's own observations, but on that of others. Moreover, despite the fact that Zeuner accepts these observations as "outstanding examples of varve-studies in pre-Pleistocene formations,"⁶ he is not averse to throwing a spoke in his own wheel. In fact he confesses outright that, in varved deposits, the 11-year signature "is decidedly rare" and "almost" completely absent.⁷ His actual words read:

¹ *Ibid.*, p. 5.

² *Ibid.*

³ F. E. Zeuner, *Dating the Past* (London, 1950), pp. 37-38.

⁴ M. Twose, *loc. cit.*

⁵ D. Cardona in *ibid.*, pp. 6 ff.

⁶ F. E. Zeuner, *op. cit.*, p. 37.

⁷ *Ibid.*, p. 43.

In varved deposits, however, it [the sunspot cycle] is decidedly rare. Antevs says that 'perhaps the most important result so far obtained from the analyses of the varve curves is the almost complete absence of the 11-year cycle in the curves' studies by C. E. P. Brooks. The nearest approach to an 11-year periodicity is one of 10.4 years in a varve series from Argentina, but even this has nothing of the compelling rhythm of the modern sunspot curve.' Subsequently it became apparent that in phases with weak sunspots the 11-year cycle is often absent, and Antevs, Brooks, Douglass, Glock, and Reeds now agree that, instead, a 10-year cycle is more frequently observed in glacial varves."¹

To Zeuner, a 10-year cycle in lieu of an 11-year one bespeaks a deterioration of climate and an increase in glaciation, even though he was honest enough to register doubt concerning "what the connecting factor actually is."²

And then, when one learns that the thickness of some of these varves varied between 7 mm and 0.3 mm,³ one wonders with what amount of precision were the annual layers detected in them counted.

Besides, what consensus is there among scientists concerning the influence this 11-year sunspot cycle has on terrestrial weather? According to Paal Brekke:

"Our sun is a variable star whose brightness waxes and wanes over an 11-year cycle. The change is subtle—about 0.1 percent—but still large enough to influence climate on Earth."⁴

But, according to Judit Brody, "the reason for [the] 11-year cycle and any direct influence on earth remains speculation."⁵

To top it all, the sunspot cycle itself may be something of a figment. As Zeuner himself indicated in a footnote, sunspots vary periodically, true enough. But this periodicity varies between 5.6 and 19.9 years. Even in averaging 96 spots, the best that one can come up with is that in 63 of them, they varied between 9.9 and 11.9 years. The 11.2 or 11.4-year cycle is nothing but a "composite periodicity." And even then, Zeuner himself tells us that "it is, of course, not constant."⁶ How, then, can such a potpourri of manipulated averages be used to account for what is claimed to be the signature of sunspot cycles in varves?

By rights, as far as an objection to the hypothesis that the Saturnian system was originally outside of the Sun's domain of influence, this particular argument should end here. As noted

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*, p. 37.

⁴ P. Basu, "The Ever-Changing Sun," *Discover* (April 2003), p. 11.

⁵ From a review of J. Brody's *The Enigma of Sunspots*, in *Sky & Telescope* (April 2003), p. 75.

⁶ F. E. Zeuner, *op. cit.*, p. 16; see also F. B. Jueneman, "The Coming Ice Age," *Industrial Research & Development* (June 1980), p. 17; R. J. Jaarsma & E. L. Odenwald, "Nor Heaven Nor Earth Have Been at Peace: The Contemporary Foundations of Shakespeare's Cataclysmic Imagery" (Concluded), *KRONOS* VI:1 (Fall 1980), p. 21.

above, however, the objection could be directed toward the additional hypothesis that, during this unspecified time, Earth basked in a single spring-like season. This is because, regardless of the validity of the 11-year sunspot cycle, varves are still claimed to indicate seasonality. This, however, was deduced back in 1927 by Friedrich Nipkow through an investigation of modern lakes. Taking core samples of the mud at the bottom of a lake in Zurich, Nipkow realized that they were laminated. Through a study of their contents—"one thin layer of microgranular carbonates and one layer of organic matter"—Nipkow surmised that the varves had to be annual deposits.¹ But if, as proposed in this work, Earth's environment was entirely different from the one at present, a reliance on modern rates and other characteristics of sedimentation cannot be made to apply to the past. Even Zeuner confesses that, in estimating the rate of sedimentation, geologists rely "on cumulative effects which have to be measured under present-day conditions and then applied to the past" which, as himself admits, suffers from certain difficulties.

Of additional interest is the rhythmic regularity that is said to be encountered in the deposition of different strata. As Zeuner puts it:

"Not infrequently, geological deposits exhibit an exceedingly regular, rhythmic alternation of two kinds of rock, such as sand and clay, or limestone and chert. Provided the thickness of the packets (called couplets) is sufficiently constant throughout the sequence, one is inclined to suspect that the alternation was caused by some regularly working, rhythmic force which favored for some time the deposition of one kind of sediment, and then for some time of the other."²

No one in his right mind would propose that this rhythmic regularity was the result of seasonal sedimentation.

In view of this, even the so-called 10-year cycle that has been detected in *some* varves—*itself also the result of manipulated averages*—cannot be said to prove seasonality. This is the more poignant when one learns that there are various other cycles of varying length—all of them the result of manipulated averages—which have also been detected in varve curves. There is a 23-year cycle, a 56-year cycle, and one which covers 21,000 years,³ the last of which has been correlated to the precession of the equinoxes.⁴ Worse still is that many varves exhibit cycles which do not correspond to any known astronomical or meteorological successions, and these have been regarded as "best left out of geochronological considerations."⁵ The upshot of it all is that not all varves can be considered annual,⁶ which would then throw havoc not only with the claimed signatures of the sunspot cycle, but even with the more prominent 10-year one.

¹ W. H. Bradley, "Limnology and the Eocene Lakes of the Rocky Mountain Region," in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), pp. 597-598.

² F. E. Zeuner, *op. cit.*, p. 312.

³ *Ibid.*, p. 44.

⁴ *Ibid.*, p. 313.

⁵ *Ibid.*, p. 36.

⁶ *Ibid.*

A good indication of Earth's primordial single season, on the other hand, comes from the lack of rings in trees of past geological periods. This was stressed by Elso Barghoorn in his study of past climates when he wrote that:

"One impressive indicator of uniform climate over great areas of the Carboniferous continents is the great absence of annual growth rings in coal-swamp trees. The entire question of ring development in woody plants is one fraught with botanical variables as well as climatic variables. However, the consistent absence of any index of seasonal growth seems difficult to explain except on the assumption that winter cold and seasonality of rainfall were absent or at a minimum. In existing woody plants, annual ring development may occur under nearly uniform climatic conditions, as in equatorial rainforests. Nevertheless, *in climates with distinct seasons, seasonal effect is almost invariably reflected in pronounced annual growth rings.*"¹

Thus, David Archibald reminds us that "the Cretaceous is widely believed to have been a time of greenhouselike balminess, at least compared to our modern climate."² But, as we saw in our previous volume, this situation was not restricted to the Cretaceous period. It was balmy throughout all past geological ages.³ By comparison, all of Earth's past ice ages were of relatively short duration.

THE BOREAL CRADLE

The Arctic regions have not only been found to have been warm during past geological ages, much warmer than at present, but even warmer than anywhere else on Earth.⁴ This boreal zone, it is now known, was teeming with life. Tropical and sub-tropical mammals and reptiles proliferated.⁵ Not only that, but flora and fauna had actually appeared in Arctic regions much earlier than they did in more southerly latitudes.⁶

Even dinosaurs are now known to have proliferated within the Arctic Circle.⁷ And while we shall be returning to this particular subject in greater detail in Part Seven of this work, it will do to keep in mind that these "thunder lizards" are now believed to have been warm-blooded. One may therefore wonder how these massive denizens could have survived within Earth's Arctic region under present conditions. Nor is there any point in appealing to continental drift to account for the transport of these remains from more southerly regions

¹ E. S. Barghoorn, "Evidence of Climatic Change in the Geologic Record of Plant Life," in P. Cloud (Ed.), *Adventures in Earth History* (San Francisco, 1970), p. 737; see also D. Cardona, *op. cit.*, pp. 374-376.

² J. D. Archibald, *op. cit.*, p. 136.

³ D. Cardona, *loc. cit.*

⁴ *Ibid.*

⁵ *Ibid.*, pp. 364-365; H. Pringle, *In Search of Ancient North America* (N. Y., 1996), pp. 15, 25.

⁶ J. D. Archibald, *op. cit.*, p. 197; D. Cardona, *op. cit.*, p. 385

⁷ S. Senkowsky, "Cretaceous Park: Cache of Dino Fossils Turns up in an Arctic Reserve," *Scientific American* (December 2002), p. 26.

because, during the Cretaceous, to which these fossils have been dated, these lands were already within the Arctic.¹

While most of this has mystified climatologists, it is easily accounted for in our scenario in which the Earth's boreal zone would have received additional *direct* heat from the Saturnian sun held in permanent suspension right above it. This would not only have kept the Arctic warm during most of Earth's geological ages, it would also have kept it free of ice during its past glacial epochs.

Even so, we are not quite home yet because, in and of itself, the above disclosure does not account for the onset or termination of ice ages. Before we come to that, however, we must not only expand our Saturnian scenario beyond the point at which we left it at the end of our previous volume, which we shall do first, we must also hearken back in time to those ages which preceded the advent of mankind, which we shall leave for last.

¹ D. Cardona, *op. cit.*, p. 366.

PART THREE

**THE PRIMORDIAL
MILIEU**

Paleolithic Man

FRIGID EMERGENCE

Of the origin and evolution of man, I will say nothing. Man, however, seems to have come into his being—that is, he reached the status that has been termed *Homo sapiens*—during the Pleistocene Ice Age. How did it come about that “the evolutionary line of primates leading to man” made “increasingly rapid advances” and that “man himself appeared on the scene” during this most unfavorable epoch?¹ At first sight this seems remarkable. Given that Earth had passed through long ages of universal warmth, with only relatively short periods of cold, one would have expected mankind to have evolved into the being he has become during one of the longer warmer periods—yet he did not. Robin Dunbar put it quite plainly when he wrote that:

“We owe our origins to the fact our ancestors went through such extraordinary hard times. The remarkable thing is that we made it.”²

Or take Windsor Chorlton who was somewhat more elaborate:

“Civilization is considered by some to be a product of the encroachments of ice. Language, cooperation, the ability to plan ahead—the very skills that enabled ancient hunters to drive a donkey herd toward a deadly precipice—may have evolved partly in response to the global changes in climate that accompanied periods of glacial advance and retreat. One anthropologist, Charles K. Brain of South Africa, has maintained that had it not been for the challenges posed by such environmental changes, humanity might still be locked in an early stage of evolutionary development, living a simple life in the tropics.”³

Ernst Öpik, too, was of the same opinion when he wrote that “primitive man established for the first time his primacy in the subpolar conditions of a cave-dweller and hunter, being forced to exercise his wits in these stern surroundings.”⁴

“During the last advance of the glaciers man learned a lesson from which he profited much in later ages, and still continues to do so: the true cradle of our civilization lies in the ice ages.”⁵

¹ Z. V. Špinar (with Z. Burian), *Life Before Man* (London, 1973), pp. 39-40.

² T. Palmer, *Catastrophism, Neocatastrophism and Evolution* (Nottingham Trent University, 1992), p. 82.

³ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 18.

⁴ E. J. Öpik, “The Ice Ages,” in P. Cloud (Ed.), *Adventures in Earth History* (S. Francisco, 1970), pp. 870-871.

⁵ *Ibid.*

Hal Porter was even more blunt:

"The civilizing of humankind—our rise from apelike foragers to walkers on the moon—seems to have occurred during a mere thaw in a glacial epoch millions of years long. The last ice age may have helped make us human, its intense environmental pressures hastening the development of the brain and creating a whole new kind of human being."¹

ARCTIC SURVIVAL

If the Arctic, as per our unfolding, was free of ice during the Ice Age, the region around the Arctic Sea must have seen a proliferation of human activity. Like elsewhere in these primordial ages, our ancestors would have survived by scrounging for edible plants and by hunting the wild beasts which would also have inhabited the area. What evidence is there for this?

Fossilized bones from northern Yukon, which Richard Harrington believes to have been "[b]itterly cold and windswept...at the height of the last glaciation,"² proves it to have been anything but desolately frigid. Even he describes the area as having been a "steppe-like grassland."³

"Studies of fossil pollen preserved in Bluefish Caves, for example, reveal traces of vast grasslands that once blanketed the region. Woven with sagebrush and sedges and edged with water-loving dwarf willows, it bore little resemblance to any environment known on the earth today. And it clearly offered rich fare for animals."⁴

Among the bones which Harrington himself discovered in this region were those of "beavers as large as black bears" and "mammoths the size of African elephants."⁵

"According to Harrington's careful studies, more than twenty-five species of large grazing and browsing animals wandered the region. Along the Bluefish River, for example, tundra musk ox and woolly mammoths, their long tusks curving into the air, grazed low-lying willows, quietly stripping the branches. On drier ground, huge, long-horned steppe bison wallowed in the dust, while herds of pony-sized horses and sandy-colored antelope kicked up their heels in the cool northern winds. On the slopes above, caribou and Dall's sheep criss-crossed the high meadows, watching warily for predators."⁶

¹ H. Porter, "A Startling Look at Ice Age Innovators," *Science Digest* (December 1982), p. 69.

² H. Pringle, *In Search of Ancient North America* (N. Y., 1996), p. 26.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*, p. 25.

⁶ *Ibid.*, p. 26.

Among these predators were the largest carnivore known from Ice Age North America, the “ursine giant known as the short-faced bear,” prides of lions “similar to those roaming the Serengeti today,” and “sleek scimitar cats” which were “related to the better-known saber-toothed cat.”¹

But man was there too. Like Harrington, Jacques Cinq-Mars has also conducted excavations in the same area. “Bone tools from the lowlands near Bluefish Caves now suggest that hunters stalked the Yukon as early as 40,000 years ago”² at the very peak of the Pleistocene Ice Age. And yet, it is quite evident from the above, that this northern region remained free of ice. As Heather Pringle reported:

“...lands from the Verkhoyansk Mountains in Siberia to the Mackenzie River in Canada had largely escaped advancing ice. While much of Canada and the northern United States groaned beneath steep walls of snow and ice, Beringia, as this vast northland came to be known, remained a green, grassy outpost, beckoning to wildlife.”³

“Such abundance would surely have tempted Beringian hunters. ‘I think it would have been very attractive for humans,’ says Harrington. And equipped as they likely were with lethal stone-tipped spears, humans were more than a match for most of this game. Among the trove of more than 10,000 bones exhumed from Bluefish Caves—the largest ever excavated from caves in northwestern North America—paleontologists identified nine species of large herbivores, meaty prey for hunters. Of these, caribou and mammoth were particularly plentiful..”⁴

And yet, as Jared Diamond noted, one must be wary of the claim that Paleolithic man was necessarily a successful hunter.

“Anthropologists routinely reply that we’ve long been successful big-game hunters, but in fact there is no good evidence of hunting skills until around 100,000 years ago, and it’s clear that even then humans were still very ineffective hunters. So it’s reasonable to assume that earlier hunters were even more ineffective.”⁵

However, as he goes on:

“...studies of modern hunter-gatherers, with far more effective weapons than those of early *H. sapiens*, show that most of a family’s calories come from plant food gathered by women. Men catch rats and other small game never mentioned in their heroic

¹ *Ibid.*, pp. 26-27.

² *Ibid.*, pp. 15-16.

³ *Ibid.*, p. 17.

⁴ *Ibid.*, p. 26.

⁵ J. Diamond, “The Great Leap Forward,” *Discover* (May 1989), pp. 53-54.

campfire stories. Occasionally they get a large animal, which does indeed contribute significantly to protein intake.”¹

Diamond then makes the natural mistake of stating that:

“...it’s only in the Arctic, where little plant food is available, that big-game hunting becomes the dominant food source. And humans didn’t reach the Arctic until around 30,000 years ago.”²

And yet, to claim that big-game roamed these Arctic regions without realizing that plants—trees, bushes, and grass—must necessarily have been plentiful enough to sustain them, is looking at the situation with blindfolds on. Just think of the mammoth, as massive as, if not more than, the modern African elephant, and what it must have taken to fill his cavernous stomach. And then think of *herds* of such wild beasts, the discovered remains of which bespeak their number.

THE NEANDERTHALS

Among the earliest primates that can be called entirely human were the Neanderthals, named after the Neander Valley near Düsseldorf, Germany, in a cave of which the first remains were found in 1856. Once believed to have been shaggy brutes who were claimed to have been an *ancestral* form of man,³ or a split-off from the main ancestral branch of our family,⁴ more recent studies have won for Neanderthal man the honor of being named a member of *Homo sapiens*,⁵ earning for himself the title of *Homo sapiens neanderthalensis*.

To R. S. Solecki, Neanderthal man was not much different from us in appearance.⁶ True enough, he possessed moderate brow ridges and a slightly low and arched forehead, a broad nose, short limbs, but, all in all, he was very well built and obviously strong. In other words he was no different from what we find among certain so-called primitive societies alive today. “If we compare fossil men such as the Neanderthals with the peripheral, primitive populations of the world,” writes C. S. Coon, “the gap between living and fossil *sapiens* skeletons narrows, until it is closed.”⁷ More than that, judging by their cranial cavity, Neanderthals were in possession of a brain that was *10 percent larger than our own*.⁸ Also, according to Jared Diamond, the birth canal of Neanderthal women may have been wider

¹ *Ibid.*, p. 54.

² *Ibid.*

³ J. Jelínek, *The Pictorial Encyclopedia of the Evolution of Man* (N. Y., 1975), pp. 86 ff.

⁴ J. Fischman, “Hard Evidence,” *Discover* (February 1992), p. 46.

⁵ “Pity the Poor Neanderthal,” *Science Impact* (May 1988), p. 3; S. J. Robinson, “On the Disproportion Between Geological Time and Historical Time: Part One—Of Apes and Men,” *Chronology and Catastrophism Review* (1993 Special Issue), p. 17.

⁶ R. S. Solecki, in G. Constable (Ed.), *The Neanderthals* (N. Y., 1973), p. 6.

⁷ C. S. Coon, *The Origin of Races* (N. Y., 1962), p. 346.

⁸ J. Diamond, *op. cit.*, pp. 51, 54.

than a modern woman's, thus permitting the fetus to grow to a bigger size before birth. "If so," Diamond believes, "a Neanderthal pregnancy might have lasted one year, instead of nine months."¹

Others have claimed that the slight anatomical differences between the Neanderthals and modern man were due to a deficiency of vitamin D which gave rise to rickets. This was blamed on the Ice Age conditions under which the Neanderthals lived, with a climate that was extremely wet and cloudy, which, even under the scheme here proposed, was very likely true. "In such conditions," Steven Robinson explained, "the inhabitants of Europe (where most Neanderthals are found) may have suffered from this deficiency as a result of an unbalanced diet and inadequate exposure to sunlight."² D. J. M. Wright has even suggested that "the Neanderthals may also have suffered from congenital syphilis, a disease that frequently accompanies rickets in societies with poor nutrition."³

We will not here discuss where it was that Neanderthal man first rose to prominence—although some have claimed to have discovered the remains of his ancestors⁴—but will restrict ourselves to his presence during the Pleistocene Ice Age. As described by Windsor Chorlton, while Neanderthal man seems to have made his appearance around 100,000 years ago, the scanty fossil record of these early generations leaves us with little to deduce about them. By 70,000 years ago, however, the Neanderthals had spread across Europe and must have been physically well adapted to the Ice Age climate *outside the warmer Arctic region*. Judging by the remains they left behind in various localities, they had by then already learned to control fire and fabricate tools of stone.⁵ They even fashioned and wore jewelry, as a necklace of perforated teeth found at Grotte du Renne, in France, attests.⁶ "The fact that Neanderthals wore jewelry," contends Juan Luis Arsuaga, "is a clear indication of their self-awareness, even if they may have stolen the idea from Cro-Magnons."⁷

Neanderthal man might even have been something of an artist and, yes, even a musician. While investigating an old mine in the Indrija Valley in Slovenia in 1996, archaeologists uncovered "an ancient hearth and a scattering of distinctive flint tools made by Neanderthals." Of greater importance, however, was the hollow femur of a young cave bear with four finger-sized holes drilled in a straight line along one side. To Ivan Turk, the leader of the archaeological team, it resembled nothing less than a flute the likes of which are known to have been employed in later times by other primitive peoples. Bonnie Blackwell, an expert on dating early human sites, realized that the holes were not drilled at a random spacing. The item is "very specific," she declared, "and there's no question that this was used to produce different tonal qualities. We're very confident it's a flute."⁸

¹ *Ibid.*, p. 55.

² S. J. Robinson, *loc. cit.*

³ *Ibid.*

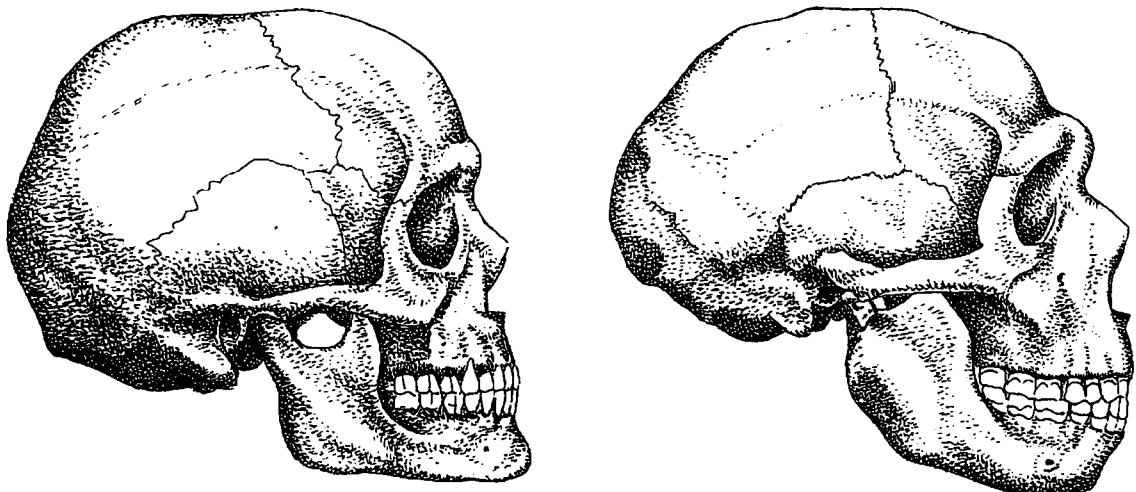
⁴ R. Kunzig, "Atapuerca: The Face of an Ancestral Child," *Discover* (December 1997), p. 90; B. Stutz, "Reading Old Bones," *Discover* (February 2003), p. 78.

⁵ J. Diamond, *loc. cit.*; W. Chorlton, *op. cit.*, p. 22; T. Palmer, *op. cit.*, p. 80.

⁶ B. Stutz, *op. cit.*, p. 76.

⁷ J. L. Arsuaga, *The Neanderthal's Necklace: In Search of the First Thinkers*, as quoted by B. Stutz, *loc. cit.*

⁸ H. Pringle, "Cultured Cavemen," *Equinox* (November 1997), p. 68.



Left: skull of modern man
Right: skull of Neanderthal man

"To archaeologists struggling to understand the origins of human behavior...the flute and several other recent finds provoked intensive soul-searching. How much, wondered many researchers, did our closest hominid kin truly resemble us in character? How intelligent, cunning, and subtle were these relatives of ours? How artistic and spiritual?"¹

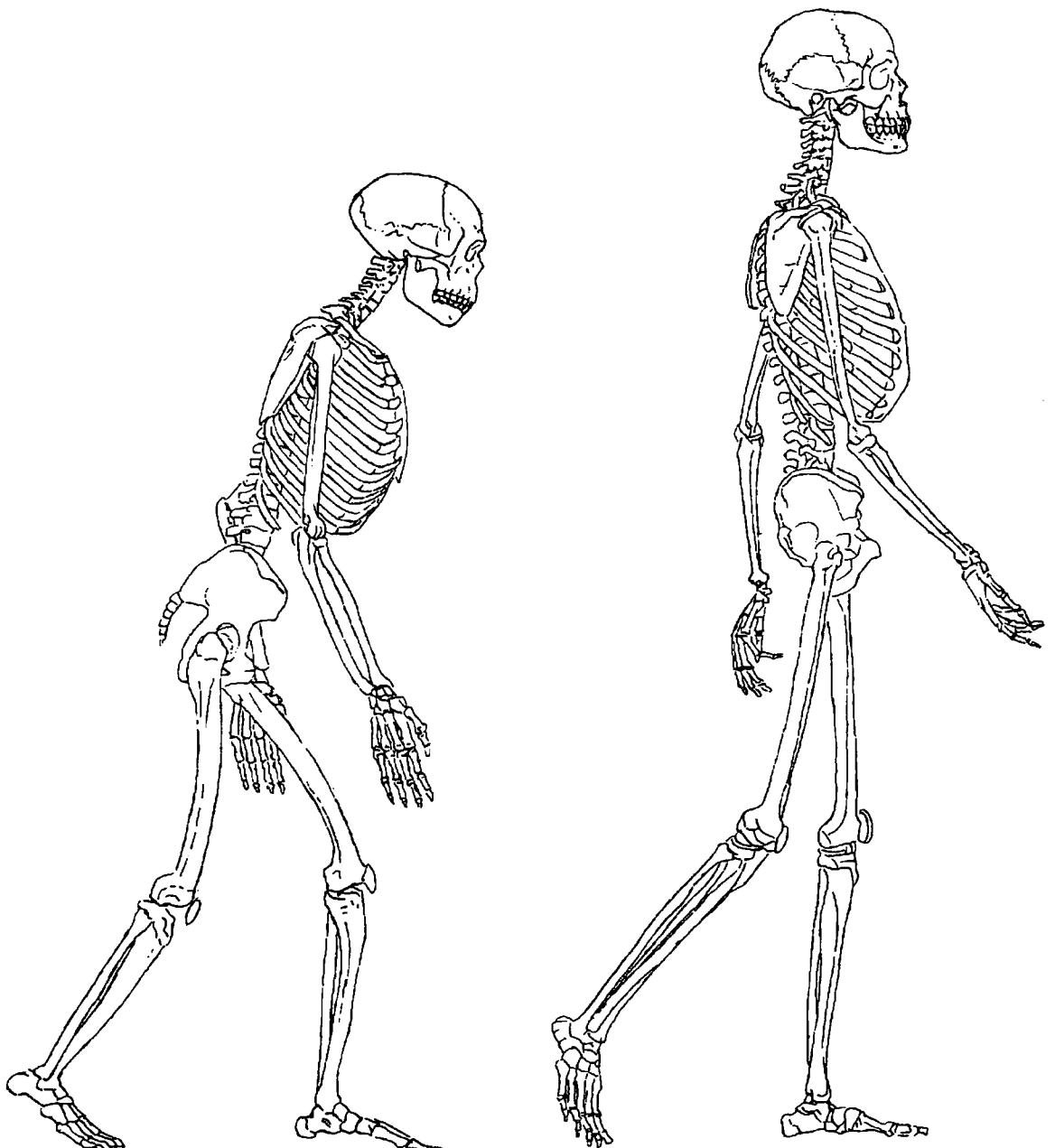
And then, at the very Neander Valley in which the first Neanderthal remains were discovered, Oscar Todkopf came upon a mastodon tusk along the curve of which sixteen aligned holes had been drilled. Like the bone flute discovered by Turk a year earlier, this, too, seemed to be an unmistakable musical instrument. The number of holes, Todkopf believes, "suggests that Neanderthals used an octave scale."²

Three other items that might also have been musical instruments were also unearthed by Todkopf. One has been described as resembling a bagpipe, although the "bag" part, which was probably fashioned from the bladder of some animal, had disintegrated long ago. All that was left of it was a protein stain in the rock. As for the pipes, these were made of long thin bones which were found arrayed around the impression. The other items consisted of a bone triangle and "a collection of hollowed-out bones of various lengths," which Todkopf believes might have been "part of an instrument similar to a xylophone." Others think the bones might have been hung at the entrance of a cave to act as wind chimes.³

¹ *Ibid.*

² "Human Origins," *Discover* (April 1997), p. 19.

³ *Ibid.*



Left: Skeleton of Neanderthal man
Right: Skeleton of modern man

Just as provocative was the discovery of what has been touted as “the first example of Neanderthal cave painting.” What is crudely depicted appears to be a line of musicians, one of whom seems to be striking a triangular instrument, while others are shown blowing through what appears to be some sort of curved horns.¹

What remains questionable is Todkopf’s interpretation of some colored dots in groups of three, which also appear in the painting, as a series of musical notation.²

But then, Karen Wright, writing for the same periodical five years later, negated it all. True, like others before her, she could still claim that Neanderthals “had big brains, used tools, lit fires, and buried their dead.” Without offering any arguments of her own, she, however, felt compelled to state that “Neanderthals...didn’t have bone needles or shell beads, they didn’t paint, or play music, and their burials [to which we shall come anon] were nonsense affairs.”³

In fact it is not even certain that Neanderthals could speak. A hyoid bone, part of a nearly complete skeleton, discovered by Baruch Arensburg in Israel’s Kebara Cave seems to indicate that “whether or not Neanderthals did speak, they could have.” This particular one has been touted as the oldest such bone found in a prehistoric site.⁴ “This bone was very modern in shape, in size, and in position,” according to Arensburg. “It is a bone so similar to modern bones that it may be an indication of anatomical capabilities.”⁵ But then, the same Arensburg notes that he “can’t be 100 percent sure that this is a Neanderthal.”⁶ On the other hand, when it comes to other Neanderthal skulls, Jeffrey Laitman believes that while they could have talked, they were still incapacitated to the extent that they “may not have been able to articulate some vowel sounds...as clearly as we can.” Even so, Laitman still claims that they were “intelligent creatures with capabilities for varied, extensive communication.”⁷

Just as controversial is the question of whether Neanderthal man was cannibalistic. The Italian archaeologist Carlo Blanc definitely thinks so. He came to this conclusion when he discovered a Neanderthal skull in a circle of stones on the floor of Guattari Cave in Italy. According to him, the skull bore “striking mutilations that looked like the work of cannibals.” More than that, still according to Blanc, the fact that the skull was found within an artificial stone circle probably meant that the individual “was killed in an ancient ritual murder,” rather than merely as food for the hungry.⁸ But, as Joshua Fischman reports:

“Today Blanc himself stands accused of cannibalizing the prehistoric record to feed his overactive imagination. In 1991 anthropologists Tim White of Berkeley and Nicholas Toth of Indiana University reported that they had carefully compared the

¹ *Ibid.*

² *Ibid.*

³ K. Wright, “Neanderthals Like Us,” *Discover* (March 2002), p. 26.

⁴ “Did Neanderthals Speak? New Bone of Contention,” *National Geographic* (October 1989), “Geographica” section.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ J. Fischman, *op. cit.*, pp. 47-48.

⁸ *Idem*, “Cannibal Carnage,” *Discover* (January 1992), p. 42.

Guattari skull with the work of headhunters from Melanesia. And what Blanc took as signs of Neanderthal cannibalism, the two now say, are more likely signs of the scavenging of hungry hyenas.”¹

And yet, it was precisely by comparing the skull in question with those obtained from Melanesian headhunters that Blanc himself reinforced his interpretation. Thus, for instance, Blanc paid special attention to an opening in the base of the Guattari skull which had been broken in and widened. Similar apertures are to be found in the Melanesian skulls which had been enlarged by the headhunters to get at the brains. According to White and Toth, however, there are differences between these cranial openings. The ones from Melanesia were broken inward as if hammered in with a rock; the Guattari skull bears indications that the fracture comes from inside out. Toth himself had examined similar fractures to the Guattari skull in animal skulls retrieved from hyena dens. The inside out fracture results when the hyena inserts its teeth into the base opening of the skull and pulls outward. Grooves left by the tooth marks on the inside of the Guattari skull seem to clinch the point. Besides, fossilized hyena droppings were also found near the skull in question which conclusively point to the presence of the animals in Guattari cave.²

But then came the discoveries from another cave, the Baume Moula-Guercy, along the Rhone River in southeastern France. What Alban Defleur and his colleagues discovered there was a cache of ancient deer bones together with those of Neanderthal man. The deer bones showed every indication of having been hacked and smashed with stone tools. But so did the Neanderthal bones. Fragments from six individual skeletons displayed the characteristic cuts and fractures one would expect from such primitive butchering. Two of the skulls had also been shattered in order to get to the nutritious brains. Marks on a jawbone indicated that the tongue had been removed.³

But why would Neanderthal man have turned to cannibalism when the deer bones themselves bespeak a quantity of available game? Could it have been a form of sympathetic magic, born of the belief that they could become what they ate—a deceased family member—or appropriating the strength of a vanquished enemy? Such suggestions, which have been forwarded by others,⁴ do comply with the reasons behind headhunting in other parts of the world. And this has led Defleur to come up with a staggering conclusion. Rather than casting Neanderthal man as an aggressive and cruel brute, Defleur believes, “this cannibalism suggests a very elaborate intellectual behavior.”⁵

Was Neanderthal man a religious being? That would depend on what one means by religion. Does sympathetic magic qualify as religion? Even so, leaving cannibalism aside, is there any evidence that Neanderthal man practiced sympathetic magic? There seems to be, and this evidence, if such it is, came to light in 1990 when the French archaeologist François Rouzaud explored Bruniquel Cave in Les Gorges de l’Aveyron in southern France. Nearly a

¹ *Ibid.*

² *Ibid.*

³ “Neanderthal Eats Neanderthal,” *Discover* (December 1999), p. 24.

⁴ *Ibid.*

⁵ *Ibid.*

quarter of a kilometer into the cave, Rouzaud and his colleagues reached a broad chamber on the floor of which lay an oval enclosure constructed of dagger-like stalagmites and stalactites. Inside this structure lay a small hearth and fragments of charred bear bones which have been radiocarbon dated to a minimum 47,600 years ago. As Heather Pringle reported: "Only Neanderthals roamed the valleys and plains of France at this time."¹

The question that then arose was this: Why would Neanderthals have set up a hearth so deep into this cave. As Pringle noted: "A long, troublesome clamber from the entrance, the subterranean chamber would have made a poor dwelling." Or, as Brian Hayden, put it: "You don't have to go that far in to get away from the cold." To Hayden, as also to Jean Clottes, such a hearth enclosed with an oval of drip-stone so far into the interior of a cave bespoke of a sacred ceremony.²

"Just what kinds of ceremonies a small group of Neanderthals held there is unclear. But it is possible, says Hayden, that visitors to Bruniquel were part of an ancient bear cult. The Neanderthals, after all, had a special affinity for these ursine creatures."³

This conclusion is strengthened by another discovery in Regourdou Cave, near the more famous Lascaux Cave, in which a stone coffer was discovered. The coffer contained a hearth, flint tools, butchered bear bones, and the headless skeleton of an adult Neanderthal⁴ — a perfect sympathetic magician's kit. Next to the coffer lay the rearranged skeleton of a bear. The skulls of two other cave bears were also found elsewhere in the same cave.⁵

"Just why Neanderthals chose to lavish such reverence on these creatures will never be known. But bears figured prominently in the world's oldest religion: shamanism... Whether Neanderthal bands shared similar beliefs 47,000 years ago remains speculation. But Hayden is convinced that they and *Homo erectus* were stirred by feelings of religious faith and awe."⁶

"Awe," we accept; "religious faith" only through clarification. Sympathetic magic of this kind, which can hardly be called religious faith, is also known from discoveries related to Cro-Magnon man, to whom we shall soon come.

Diamond also tells us that Neanderthals took care of their sick and aged.

"Most skeletons of older Neanderthals shows signs of severe impairment, such as withered arms, healed but incapacitating broken bones, tooth loss, and severe osteoarthritis. Only care by young Neanderthals could have enabled such older folk to stay alive to the point of such incapacitation."⁷

¹ H. Pringle, *op. cit.*, pp. 74, 76.

² *Ibid.*, p. 76.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ J. Diamond, *loc. cit.*

One of the discoveries that led to this conclusion was the Neanderthal remains discovered at La Chapelle-aux-Saints. The bones were racked with arthritis and the jaws had lost their teeth. “That the old man lived as long as he did, anthropologists have suggested, attests to a kindly altruism among his kinfolk, who must have cared for the toothless cripple for years, even chewing his food for him.”¹ But even this has come under attack.

“Neil Tappen, an anthropologist at the University of Wisconsin, Milwaukee, says that just isn’t true. Tappen examined the bones closely and determined that the old man had five upper and five lower teeth on the left side of his mouth at the time of his death. The teeth must have been lost sometime after he died. He may even have had some teeth on the right side, but the indications for that are less clear.

“‘The evidence for altruistic behavior of European Neanderthals based upon the presumed helplessness of the individual from La Chapelle-aux-Saints,’ Tappen writes in the *American Journal of Physical Anthropology*, ‘seems quite dubious’.”²

La Chapelle-aux-Saints, however, is not the only place in which clues to the care of the sick and disabled have come to light. One such other place is Shanidar Cave, in northern Iraq. The remains of a Neanderthal individual discovered there indicated that he had died from a colossal blow on the head.³ But also:

“...inspection of his skeleton showed that even when alive he had been seriously handicapped: a birth defect had denied him the use of the upper right side of his body, and he was also arthritic and blind in one eye. In short, he must have been dependent on others for food as well as protection. It was clear to [Ralph] Solecki that the Neanderthals had possessed the humane instinct to care for those of their fellows who could not fend for themselves.”⁴

How long—to what age—did they live? “Their skeletons,” writes Diamond, “make clear that adults might live to their thirties or early forties but not beyond 45.”⁵

The dead, in turn, were not only buried with care, but, it seems, with an eye to a continued existence after death. The shallow grave at La Chapelle-aux-Saints, discovered in 1908, contained the skeleton of an individual who was supplied with provisions. A bison leg, broken animal bones, and flint tools had been interred with him.⁶ These articles would not have been buried with the dead had those who buried him did not believe that the one interred would have needed them after death.

¹ “Noted...,” *Science Digest* (January 1986), p. 22.

² *Ibid.*

³ G. Constable, *The Neanderthals* (N. Y., 1973), pp. 145-146.

⁴ *Ibid.*, p. 146; see also S. McCarter, “When We Arrived,” *Archaeology Odyssey* (November/December 2001), p. 35.

⁵ J. Diamond, *loc. cit.*

⁶ G. Constable, *op. cit.*, p. 97.

Other burials containing grave goods have been discovered elsewhere,¹ including that of a baby.² And, surprisingly enough, among such grave goods were flowers. This came to light when the skeleton of a buried individual from Shanidar Cave was examined in Paris by the paleobotanist Arlette Leroi-Gourhan. What she discovered under the microscope was the inclusion of pollen from eight different flowers.³

"Experts agreed that the plants could not have grown in the cave or been carried there by animals. It seemed clear that the corpse had been buried with wild flowers gathered from the hillside. Here was proof that Neanderthals were loving men who confronted death with complex emotions and who mourned a loss in a ritualistic way by strewing the dead with flowers."⁴

Anthropologist Robert Gargett was not convinced. Despite the examination of the Shanidar grave in question that was conducted in Paris by Leroi-Gourhan, Gargett still believed that the pollen in question "could have been blown to the site by the wind or carried there by animals." As reported in *Current Anthropology*, "Gargett does not deny the possibility of ritual Neanderthal burials, but says that archeologists should first rule out simpler explanations for the fossil evidence they uncover."⁵

Even so, regardless of the validity of the above hypotheses concerning the burial customs of these Neanderthal folk, it should be pointed out that belief in a life after death does not necessarily translate into belief in a god and, therefore, it cannot be said that Neanderthals were a religious people. Dreams, including nightmares, of those departed would be enough to convince the living that the dead still lived in some mysterious realm. This would have been enough to lead them into interring provisions with the dead in the hope that the departed would not return to harm them. The custom might also have arisen simply out of respect for the departed, in which case it would be conceivable that flowers would have been added to the interred provisions. After all, as has been known for some time, even elephants have a tendency to respect their own deceased by returning to the place of their fallen comrades to pick up and caress their bleached bones.

It had of course been known for quite some time that the Neanderthals were contemporaneous with the Pleistocene Ice Age. Needless to say, this led to the belief that Neanderthals had been well adapted to cold weather. But, because of the belief that Arctic regions would have been even colder than more southerly regions, Neanderthal man was not believed to have ventured that far north. This was aptly demonstrated when, back in 1989, Jared Diamond could still state that:

"During the time that Neanderthals flourished, Europe and Asia were in the grip of the last ice age. Hence Neanderthals must have been a cold-adapted people—but only

¹ *Ibid.*, p. 98.

² *New Scientist* (June 4, 1994), p. 15.

³ G. Constable, *op. cit.*, p. 148.

⁴ *Ibid.*

⁵ "Grave Errors," *Science Digest* (September 1989), p. 45.

within limits. *They got no farther north than southern Britain, northern Germany, Kiev, and the Caspian Sea.*¹

By the year 2002, however, William Leonard could state outright that the Neanderthals “were among the first humans to inhabit Arctic environments.” Yet, like Diamond before him, still believing that Arctic regions must have been colder than more southerly ones during the Ice Age, he was forced to claim that “they almost certainly would have needed ample calories to endure under those circumstances.” By studying how the modern Evenki of Siberia and the Inuit of Arctic Canada obtain their needed calorie intake, the conclusion was reached that Neanderthals had to have obtained almost all their dietary protein from animal foods. This led to the assumption, contrary to that asserted by Diamond above, that Neanderthals *must* have been prolific and skilled hunters.² Be that as it may, Neanderthals out of the Arctic regions might have *needed* vast intakes of animal food for their dietary sustenance. Those living in the warmer Arctic areas might not have. The fact that they did eat enough meat to sustain them could have been merely due to the fact that entire herds of animals were all around them ready to be chased, trapped, and slain.

One question that has bothered anthropologists for years is whether we are the descendants of Neanderthal people or not? Up until 1992, it was still unknown whether Neanderthals had given rise to us. Some, as Fischman put it, saw “no gulf between the Neanderthal appearance and our own that’s too great for a little evolution to push across.”³ Five years later, it was definitely proven through DNA testing that “modern human beings” could not have interbred with Neanderthals.⁴ “But,” as Robert Kunzig noted, “that will not end the debate.”⁵ The reason for that, as Kunzig added, is simple enough. To use his own words: “There is an irreducible subjectivity to paleoanthropology, having to do in part with the paucity of fossils, which permits arguments to remain unresolved—and nowhere is that paucity more pronounced than when you try to go back beyond Neanderthals into the Middle and Lower Pleistocene.”⁶ Consensus of opinion, however, eventually won out. As Carl Zimmer reported in reviewing two books on the subject:

“If the old hypothesis were right, the DNA of living Europeans would have been similar to that of Neanderthals. But Europeans’ DNA is actually much more similar to that of Asians and Africans. The evidence supports a growing consensus that the ancestors of Neanderthals and living humans split into separate lineages some half million years ago, then evolved into distinct species. Their species died out, whereas ours survives.”⁷

¹ J. Diamond, *op. cit.*, p. 54 (emphasis added).

² W. R. Leonard, “Food For Thought,” *Scientific American* (December 2002), p. 113.

³ J. Fischman, “Hard Evidence,” *Discover* (February 1992), p. 46.

⁴ “Genetic Mismatch,” *Maclean’s* (July 21, 1997), p. 36.

⁵ R. Kunzig, *op. cit.*, p. 96.

⁶ *Ibid.*

⁷ C. Zimmer, “Get Me Rewrite!” *Discover* (July 2002), P. 84.

What happened? What was it that drove the Neanderthals to extinction? Theories are as varied as the ones who have proposed them. It all depends on which authority one consults. As Fischman reports, “the question of their fate has consumed Neanderthal research for most of the twentieth century.”¹ So, also, when it comes to dating their last stand. For that reason, I shall not burden the reader with a lengthy list of proposed dates for the extinction of Neanderthal man. Suffice it to know that this breed disappeared from the face of the Earth at the end of the last Ice Age, or not long thereafter. This, too, raises a conundrum because, if Neanderthals were capable of surviving through the Ice Age in the harsh conditions outside the warmer Arctic, as they did all over Europe and the Near East, why would they have succumbed precisely when the weather finally warmed up at the end of that period?

THE CRO-MAGNONS

Co-existing with the Neanderthals were an entirely different type of human beings, known to us now as Cro-Magnons, named after the rock shelter—itself named after a local hermit called Magnou—at Les Eyzies, on the shore of the Vézère River in France, where their first skeletal remains were discovered. The original term—that is “Cro-Magnons”—eventually became attached to prehistoric hunter-gatherers in general other than the obviously different Neanderthals.² This newly discovered breed was truly *Homo sapiens sapiens*—modern in every sense.

“Their physical differences from people living in Europe today were no greater than the differences now between Irishmen, say, and Austrians. On the whole, those ancient men were perhaps a little shorter than is the average European of today, their heads were a trifle larger—and also, perhaps, their brains. The men stood about 5 feet 8 inches on the average, had high foreheads, prominent chins, aquiline noses and small, even teeth. They were decidedly taller than the women, a characteristic that is also true of Europeans today. Most scientists agree that since they resemble modern Europeans so much in their skeletal design, the people of the Cro-Magnon valley must have looked pretty much the same in other ways—their skin was probably light and of about the same hairiness as modern Caucasians.”³

Where and how the Cro-Magnons first arose remains unknown.⁴ Their appearance, however, “coincided with the most bitter phase of the Ice Age.”⁵ There is, however, no doubt that they were more advanced, more sophisticated, than the Neanderthals with whom they shared the land. “Living in larger and more organized groups than had earlier humans, Cro-Magnon peoples spread out until they populated most of the world.”⁶ Their tools, made of

¹ J. Fischman, *loc. cit.*

² P. E. L. Smith, “Introduction,” in T. Prideaux, *Cro-Magnon Man* (N. Y., 1973), p. 7.

³ T. Prideaux (see above), p. 11.

⁴ W. Chorlton, *op. cit.*, p. 23.

⁵ *Ibid.*, p. 24.

⁶ *Ibid.*, p. 23.

stone, bone, and even wood, were carved into harpoons, awls, needles, and fish hooks. They were presumably able hunters, although, as with the Neanderthals, they would also have foraged to gather edible plants, roots, and wild vegetables. The only problem here is that, as far as can be told, the Cro-Magnons seem to have arrived on the scene without leaving a single trace of their evolutionary ancestors. “When the first Cro-Magnons arrived in Europe some 40,000 years ago,” Ian Tattersall observed, “they evidently brought with them more or less the entire panoply of behaviors that distinguishes modern humans from every other species that has ever existed.”¹

One thing that has often been misunderstood about the evolutionary process is that anatomical differences do not appear for any practical purposes.

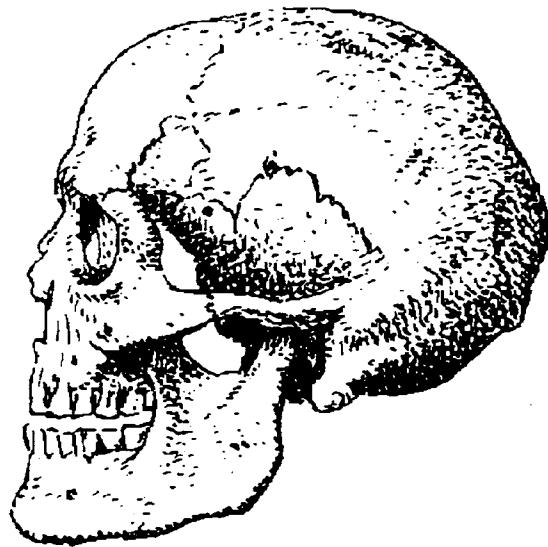
“...it’s important to remember that new structures do not arise *for* anything [Tattersall disclosed]. They simply come about spontaneously, as by-products of copying errors that routinely occur as genetic information is passed from one generation to the next. Natural selection is most certainly not a generative force that calls new structures into existence...”²

It is unfortunate that those who write on evolution very often give the impression that new traits arise in response to requirements. What really transpires is that, through genetic mutation, new traits arise, and these can be either advantageous or unfavorable. Newly acquired traits prove advantageous or otherwise because of the particular environment in which the creature so endowed happens to be living. Those new traits which end up aiding the creature in question to avoid detection, or to reach what is unreachable to others, survive much better. Survival tends to pass the newly acquired traits to offspring. Those who are not blessed with such gainful acquisitions, or whose newly acquired traits prove unfavorable, if not detrimental, in their particular environment, fail to survive. The camel did not develop his soft cushioned feet in order to enable him to traverse the soft sands of the desert. The camel simply adapted to the soft sands of the desert *because* he was endowed with soft cushioned feet. Another good example of this is the much touted case of the peppered moth. These come in two different varieties—light and dark. Anatomically, neither color is advantageous over the other. Environmentally it is—or so it has turned out. For years the light variety had the upper hand because they were less likely to be spotted by birds against the light bark of the tree trunks on which they were wont to alight and rest. But, with the advent of the industrial revolution, when tree trunks turned darker through the coating of grime belched out by factories, the light variety lost the advantage which was gained by the darker moths. The point I wish to stress here is that the anatomy of the Cro-Magnons was no more beneficial than that of the Neanderthals. And, since they shared the same terrain for untold generations, neither was the environment in which they lived. Which, again, raises the question as to why one breed survived and the other did not.

The success of the Cro-Magnon incursion is evidenced by the fact that Cro-Magnon sites are much more numerous than those of the Neanderthals. They stretch all across Europe,

¹ I. Tattersall, “How We Came to be Human,” *Scientific American* (December 2001), p. 58.

² *Ibid* (emphasis as given).



Cro-Magnon skull.

most of Africa, the Near East, India, North and South America, Australia, and Alaska.¹ Moreover, while the Neanderthals obtained their raw materials within a few miles of their range, judging by their remains, the Cro-Magnons must have been involved in long-distance trade, not only for their raw materials but also for their ornaments.

"Tools of obsidian, jasper, and flint are found hundreds of miles from where these stones were quarried. Baltic amber reached southeast Europe, while Mediterranean shells were carried to inland parts of France, Spain, and the Ukraine."²

One particular item in the Cro-Magnon kit that would definitely have given them the upper hand in hunting was the spear thrower, which would have allowed these hunters to hurl a spear considerably faster, much farther, and more accurately than the Neanderthals could barehanded. Fragments of primitive cord excavated from Cro-Magnon sites also indicate that they might have woven and used nets, which would have increased their hunting efficiency.³ More than that, nets might also have been used by women to trap animals, as Olga Soffer and her colleagues have argued, which would raise the status of Paleolithic women above that of mere plant gatherers. "In many historical societies," observed Soffer, "women played a key part in net hunting since the technique did not call for brute strength nor did it place young

¹ See here T. Prideaux, *op. cit.*, pp. 38-39.

² J. Diamond, *op. cit.*, p. 57.

³ S. Begley & L. Lief, "The Way We Were," *Newsweek* (November 10, 1986), p. 66.

mothers in physical peril.” In fact, as far as Soffer is concerned, women might even have hunted with the spear alongside the men.¹

Apart from caves and more open rocky shelters, the Cro-Magnons also constructed dwellings. In the Ukraine, these were somewhat circular, the walls of which were built of intricately stacked mammoth bones which would then have been covered over with skins. In some excavated villages in France, separate areas were allotted for butchering, extracting marrow from bones, cooking, and the dumping of garbage.²

The so-called bear cult, which we encountered among the Neanderthals, was also practiced by the Cro-Magnons—which raises the question of who passed it on to whom. Incontrovertible evidence of this cult comes from a cave at Montespan, France, where the clay model of a headless bear was discovered with the skull of a bear cub nearby. This model was peppered with spear holes, which indicates that a form of sympathetic magic. It does not require an over-imaginative leap in supposing that the model would have been covered with the pelt of an actual bear, which would then have been riddled with spears in a ceremony believed to enhance the prowess of the hunters,³ or in order to exert some magical power over the hunted beast.⁴

It should be pointed out, however, that the bear was not the only animal the Cro-Magnons treated in the above manner. Thus, for instance, the outline of a horse on a clay bed in the same cave, although only 45 centimeters in length, is also riddled with holes,⁵ attesting to the same type of sympathetic magic. A bison, painted on one of the cave walls of Lascaux is, moreover, engraved with arrows across its body.⁶

One other advantage the Cro-Magnons seemed to have had over Neanderthals was a longer life. Although it seems evident that, like Neanderthals, the Cro-Magnons also suffered from arthritis, their teeth do not show a propensity of cavities.⁷ Examination of Cro-Magnon skeletons indicate that some individuals survived into their sixties.⁸

On the other hand, much like the Neanderthals, the Cro-Magnons also buried goods with their deceased. True, there are many Cro-Magnon caves that have been discovered which did not contain interred grave goods. Others, however, abounded with such goods. In a somewhat late grave—dated to 20,000 years ago—found at Sungir, near Moscow, the remains of two boys were found buried together head to head with valuable ivory spears, ivory beads, rings, and anklets. Two other boys unearthed in Italy were buried side by side but face down.⁹ Ivory jewelry, necklaces made from the pierced teeth of foxes, spears, flint knives and others made from mammoth tusks, as well as batons were also interred¹⁰—although, to

¹ H. Pringle, “New Women of the Ice Age,” *Discover* (April 1998), pp. 64 ff.

² S. Begley & L. Lief, *op. cit.*, pp. 62-63, 66.

³ J. Wolf, *et al.*, *The Dawn of Man* (N. Y., 1978), pp. 121, 151.

⁴ *Ibid.*, p. 144.

⁵ J. Jelínek, *op. cit.*, p. 330.

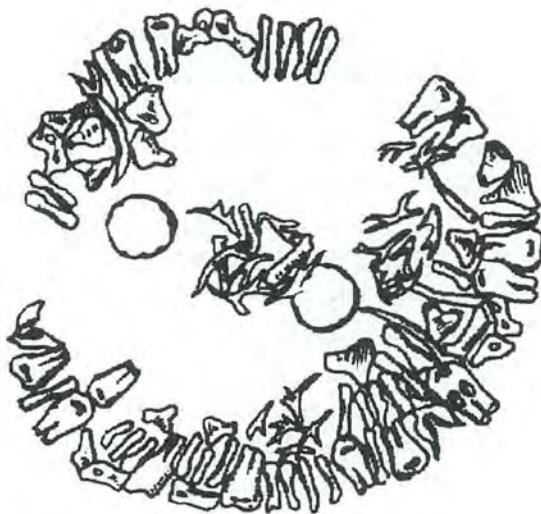
⁶ *Ibid.*, p. 328-329.

⁷ S. Begley & L. Lief, *op. cit.*, p. 66.

⁸ *Ibid.*, p. 63.

⁹ *Ibid.*, pp., 66, 71; T. Prideaux, *op. cit.*, p. 139.

¹⁰ J. Wolf, *et al.*, *op. cit.*, p. 129.



Plan of circular dwelling constructed of the lower jaws
and other mammoth bones, with two round hearths,
from Mezin, Ukraine.

be sure, how archaeologists can tell these items served as batons is beyond me. Bodies, and graves themselves, were often sprinkled with red ochre. Whether this had a ritualistic significance, or whether the corpses were colored to disguise the pallor of death, remains unknown.¹

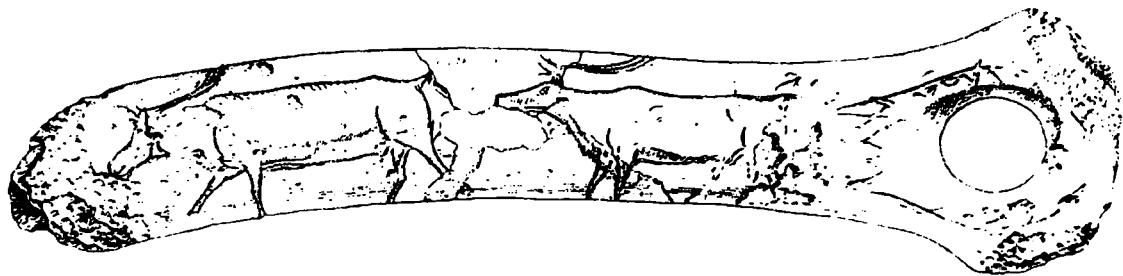
PALEOART

If there is one thing above everything else that set the Cro-Magnons apart from the Neanderthals, it has to be the magnificence of their art. Although the Cro-Magnons left examples of their artwork everywhere they settled, nowhere did it excel that which is found in Europe, especially in the caves of Lascaux in France, and Altamira in Spain. So exquisite is this art that, when first discovered, it was viewed with great suspicion since, until then, it had been assumed that prehistoric art could only have been of much more primitive quality.²

"The cave paintings, engravings, reliefs, and statuettes found one after the other provided the proof that prehistoric man had reached a high level of cultural development. None of it was as primitive as had been thought till then. It was almost the opposite in fact; the mammoth and rhinoceros hunters of the Ice Age had laid a foundation of cul-

¹ *Ibid.*, pp. 129, 130.

² J. Jelínek, *op. cit.*, p. 277.



So-called Cro-Magnon baton made from an antler engraved with reindeer.

ture with their art on a level *which was not to be reached again for many millennia.*¹

People, plants, and even abstract figures are among the items represented, but it is obvious that the Cro-Magnons reserved their best for the animals they hunted. More recent discoveries in Chauvet Cave, not far from Lascaux, has not only stunned the world with the excellence of the artwork it contains, but also with its dating of 30,000 years as deduced from paint samples tested at three laboratories.² "It's the quality of the paintings, however, as much as their great antiquity, that makes them so surprising," Michael Lemonick reported. "The Chauvet cave drawings...are exquisitely rendered likenesses that use the caverns' natural contours to heighten a sense of perspective."³ In contrast with the art of Cosquer Cave, that of Chauvet "suggests that the art of early man did not mature steadily in any simple linear fashion."⁴ As far as Patrice Béghain is concerned, it "throws the entire notion of progressive artistic development into question."⁵ Moreover, most of these animals, at Lascaux, Altamira, and elsewhere, were painted on the walls in the most inaccessible parts of caves and could not, therefore, have been intended for general public viewing as in modern art galleries.⁶ It has therefore been assumed that these pictures were intended for some secret ritualistic purposes, perhaps even in initiatory rites, or some other form of shamanism.

"The real purpose behind Cro-Magnon art has intrigued archaeologists [Josef Wolf had to admit]. For a long time the dominant theory was that of sympathetic magic. The Cro-Magnons represented animals they were going to hunt in order to exert some magical power over them. Sometimes they drew the animals with wounds, or with spears piercing their bodies; in other cases some of the animals were painted dead or

¹ *Ibid* (emphasis added).

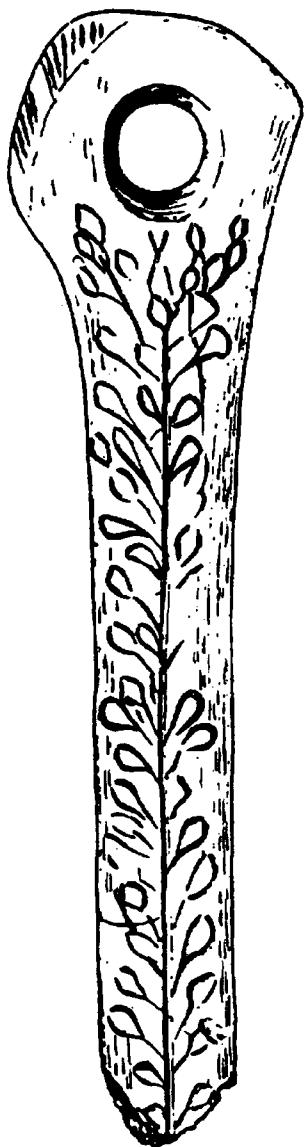
² M. D. Lemonick, "Stone-Age Bombshell," *TIME* (June 19, 1995), p. 37.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ J. Wolf, *et al.*, *op. cit.*, pp. 143-144.



Baton from Laugerie Basse, France,
with plant motif.

dying. Thus this theory suggests that cave art was produced to make the hunt successful."¹

Not content with such a mundane interpretation, other theories were proposed in search of a more deeply religious, and even a cosmological, explanation.²

THE GREAT BEAR

Prime among those who have seen a cosmological significance in some of the art of the Cro-Magnons are Owen Gingerich and Alexander Marshack. Gingerich's argument revolved around the constellation of the Great Bear, otherwise known as Ursa Major. His claim was that the Great Bear's name "may date back as far back as the Ice Ages" since the name of this constellation was also known "by many different Indian tribes of North America." According to him, these Indians could not have brought it with them from Siberia—where the name of the constellation was also known—across the Bering Straits except during that time when the straits were bridged by the ice of the last Ice Age.³ This led Leroy Ellenberger to state that:

"The identification of this constellation may well have originated about 26,000 BP before the peak of the last glaciation...when Polaris was earlier the pole star. At that time, the giant cave bear,

¹ *Ibid.*, pp. 144, 151.

² *Ibid.*, p. 151; see also S. Begley & L. Lief, *op. cit.*, pp. 71-72.

³ O. Gingerich, "The Origin of the Zodiac," *Sky & Telescope* (March 1984), p. 220.



Cro-Magnon artist.

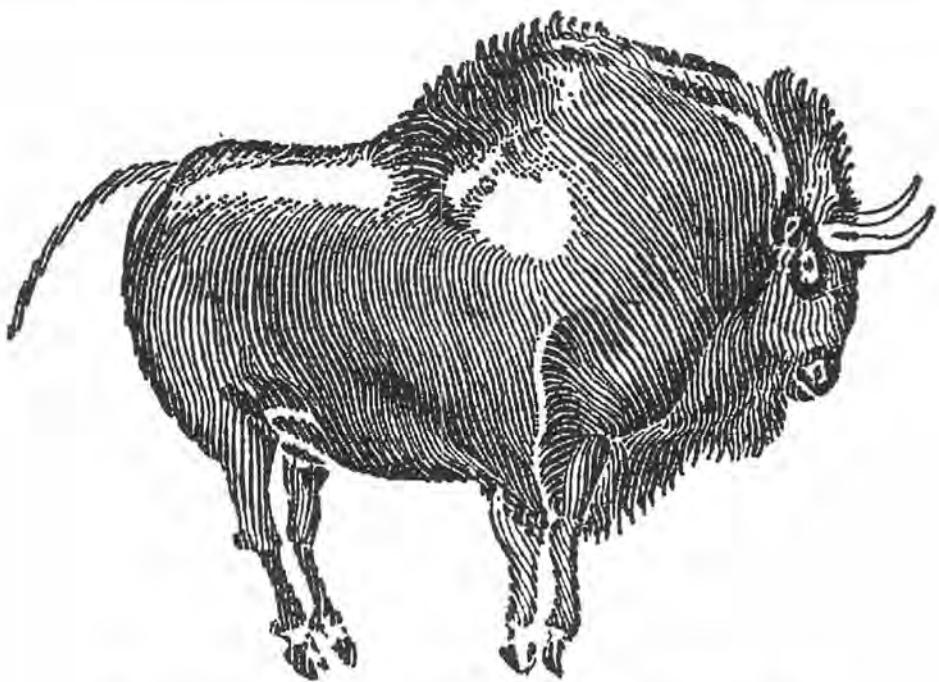


Cro-Magnon painting of grazing reindeer.
From Font de Gaume, France.
(Illustration after Abbé Breuil.)

whose veneration traces back 50,000 years, was the supreme beast of prey and sacred to Paleolithic Man in Europe. While the mammoth and mastodon survived the last Ice Age, the giant cave bear did not, and the high caves in which it was venerated were blocked by ice and not used at the peak of the last glaciation. Thus, the giant cave bear was last venerated when Polaris was the pole star."¹

Ellenberger was somewhat confused about all this. For one thing, Gingerich did not base the antiquity of the Great Bear's name on the veneration of this beast by Paleolithic man. Besides, what is there in the Great Bear constellation that specifically looks like the prehistoric giant cave bear as opposed to the more common bear which remained prevalent in Europe after the Ice Age? Ellenberger was here victim of the belief that the giant cave bear was in any way venerated by the Cro-Magnons—or Paleolithic man, if one wishes—when, as

¹ L. Ellenberger, "The Impossible Tippe Top Earth," *AEON* II:5 (February 1992), p. 86.



Bison—painted in four colors—from the Cave of Altamira, Spain.
(Illustration by J. F. Horrabin.)

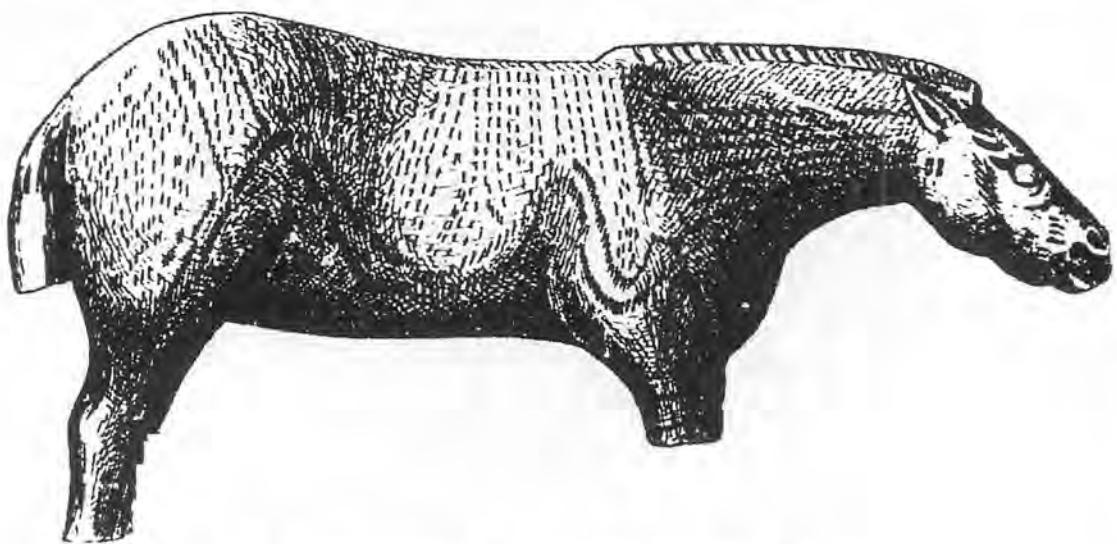
indicated above, this is merely a supposition forwarded by some, but one which does not square with the known facts of archaeological discoveries. Moreover, the bear did not dominate Cro-Magnon art. In eastern Europe and what used to be Soviet Asia, the mammoth was the most favored animal portrayed by the Cro-Magnons. In western Europe, horses, reindeer, deer and bison predominated.¹ True enough, as noted above, the clay figure of a bear, riddled with spear holes, attests to sympathetic magic associated with that animal. But, as we also noted, the bear was not unique in this respect. Finally, that these caves were blocked by ice is entirely untrue since, with the exception of Alaska—to which we shall return in a while—Cro-Magnon sites have only been discovered south of the demarcation, that is *outside* the limits, of the Pleistocene Ice Age.²

Ellenberger aside, Gingerich's reasoning would still be enough to raise an objection to our premise that, during this time, the stars were not visible. How, then, could Paleolithic man have brought the knowledge and name of the Great Bear constellation with him when he crossed over from Siberia to North America across the Bering Straits land bridge?

Gingerich's hypothesis may have seemed valid in 1984 when he proposed it. But, as in other matters, knowledge has moved on. Thus, for one thing, according to surveys published

¹ J. Wolf, *op. cit.*, p. 143.

² T. Prudeaux, *op. cit.*, pp. 38-39.



Miniature sculpture of a horse from Lourdes, France.
(Illustration after Abbé Breuil.)

in the 1990s by the Canadian geologist Alejandra Duk-Rodkin and her colleagues, the much touted Bering Straits passage was not passable at the height of the Ice Age. While the lowering of sea levels would have exposed the land at the Bering Straits, turning it into a land bridge, the glaciers from both sides of Beringia had unfortunately already met, and the "door" was thus closed.¹

On the other hand, it is now evident that man was already in North America *before* the last Ice Age.² And yet, as Brian Bethune reported, "DNA studies have pointed to Asian origins for four lineages that characterize more than 95 per cent of indigenous Americans."³ This would then mean that Asians would have had to have crossed into North America across the Bering Straits *in boats*.

A fifth DNA lineage, however, "most commonly detected in Canada's Ojibwa people, has no known Asian affiliation." But it does turn up in Europeans.⁴ Among other things, this has led to the theory that the people who colonized the Americas came in different waves from different places at different times in boats along the shores and even across the sea.⁵

It is therefore not reasonable to assume that once the Ice Age was over such voyages would have come to an end. The knowledge and name of the Great Bear constellation could therefore have been brought to North America from Siberia at a later date than the one

¹ B. Bethune, "Mystery of the First North Americans," *Maclean's* (March 19, 2001), p. 26.

² *Ibid.*, p. 29.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*, pp. 27-28 and elsewhere in same article.



Cro-Magnon shaman dressed in the skin and antlers of a reindeer.
From Les Trois Frères, France.
(Illustration after Abbé Breuil.)



**Okeeamaquid, famed warrior of the Ojibwa—1825—whose people
bear DNA lineage with that of Europeans.
(Illustration by Peter F. Copeland.)**

envisioned by Gingerich. And did this knowledge, in fact, had to have come from Siberia? In view of the above, why not from Europe?

LUNAR NOTATIONS

"A reindeer antler discovered in France is engraved with a pattern that has been interpreted as indicating the phases of the moon." Thus does Windsor Chorlton introduce this controversial subject¹—only to leave it hanging in mid-air without another word.

Seeing that our hypothesis calls for a sky that was still bereft of a Moon during the time in question, it behooves us to find out what lies behind this claim?

This brings us to Alexander Marshack who, as a science editor and writer, was trying to trace the origins of astronomy and the developments of calendars for a book he was writing in 1963. Perturbed by the dividing line between Paleolithic man with his stone tools and exquisite art on one side, and the later agricultural communities with their astronomical observation and sophisticated calendars on the other, Marshack felt obliged to fill the gap. Astronomy, with its calendars, he reasoned, could not have appeared full-fledged overnight. Somewhere, he continued to reason, there must be some evidence of a slow astronomical development which archaeologists had until then overlooked. If anywhere, this evidence had to have been hidden somewhere in some of the objects reclaimed from the innumerable troves of Paleolithic man.

Focusing on an 8,500 year-old bone engraving tool discovered at Ishango at the headwaters of the Nile, Marshack noticed that it was covered with scratches on its handle. These scratches appeared to be grouped in a pattern which he believed to be references to the phases of the Moon. Still not happy with the date allotted to this object, Marshack devoted the next nineteen years of his life poring over specimens, always searching for similar, but older, tell-tale marks. He eventually found what he was looking for in the 30,000 year-old tools of the European Cro-Magnons. The scientific papers he then wrote on the subject, to say nothing of his book—*The Roots of Civilization*—have since turned Marshack into one of the world's leading authorities on Ice Age art.²

One of Marshack's prime examples of Cro-Magnon lunar notations is a plaque made from a reindeer antler that was discovered in the Dordogne region of France. This plaque bears a number of incisions in a meandering pattern, each of which incision, according to Marshack, must have been made one at a time, with different tools, over an extended period.

"[Marshack] could distinguish several tool points and varying pressures. These variations indicated the serpentine line of marks was not a random design struck off at one sitting but rather a purposeful sequence. The marks seemed some sort of tally, and Marshack found that they could be *roughly* matched to the phases of the moon..."³

¹ W. Chorlton, *op. cit.*, p. 35.

² For a more detailed report see H. Porter, *op. cit.*, pp. 69 ff.

³ T. Prideaux, *op. cit.*, p. 140 (emphasis added).

Tally marks these notations might well have been. But with so many items that the Cro-Magnons could tally, why necessarily the phases of the Moon? As Tom Prideaux, who penned the above quote, was honest enough to state, the marks in question only *roughly* match the phases of the Moon. Tallying nights—had there been nights as opposed to days to tally—should have been an easy matter. Why not then a more exact counting?

Marshack himself believes that the sequence is suggested by the turns in the direction of the meandering line taken by the marks. These changes of direction, he suggests, point to the changes in the direction of the Moon's motion across the sky following the fifteenth day of its cycle.¹ But, as depicted by Marshack himself, the tracks of each meander do not all contain fifteen marks, as they should. There are counts of fourteen, fifteen, and sixteen. One or two of the marks which seem to fall outside the curve, are not even counted. It can thus be seen that the entire scheme is merely force-fitted to fit the cycle of the Moon, and not all that correctly either.

Another item, the artificially notched radius bone of a wolf, from the Magdalenian culture of Moravia, on the other hand, does seem to bear a double notch dividing what has been called the first thirty single notches from the rest.² This, then, is supposed to mark the thirty-day progress of the lunar phases. However, in actuality, there are only twenty-nine notches in the first sequence, while the rest of the notches, that is the second sequence, only number twenty four.

And so, similarly, with other items that Marshack has presented as evidence of Paleolithic lunar notations. And yet, one may ask: Are clusters of fourteen, fifteen, and sixteen, not close enough to half a lunar cycle? But then, through picking and choosing, one can collect enough items the scratches and dots on which might come close to any set of numbers one might be looking for. What about the slew of other items the scratches or dots on which fall entirely outside any numbers that can be related to the lunar cycle? It is not as if such items do not exist.³ Take, for instance, one of the bone implements discovered at Saint-Marcel, in France.⁴ This is not much different than the one from Moravia discussed above. It, too, has single and double notches of the same type. It falls into the same category. Yet the number of single notches between the two sets of double ones number forty seven. In fact, archaeologists have not attempted to find anything significant in the number of notches on this particular item. They have simply described the piece as “a richly decorated object with simple geometric ornament.”⁵

The point is that anyone can “prove” whatever one wishes through the method of selectivity, just as anyone can be swayed by the resulting selective statistics. As Prideaux noted, while some scholars have been convinced of Marshack’s conclusions, quite a few others continue to question his interpretations.⁶

¹ *Ibid.*, p. 144.

² J. Jelínek, *op. cit.*, pp. 414, 440-441.

³ See here, for instance, *Ibid.*, pp. 449, 450, 452, 459 for examples of such objects.

⁴ See photograph in *Ibid.*, p. 499.

⁵ *Ibid.*, p. 424.

⁶ T. Prideaux, *loc. cit.*

Marshack had good reason to be perplexed by the lack of calendric material prior to the agricultural age. This lack, however, has nothing to do with unrecognized evidence of such material. The lack is the result of there having been nothing in the sky or on Earth which would have enabled man to calculate the passage of time, as in fact he later had it recorded in both hemispheres of the world.¹ Immersed in the perpetual semi-darkness postulated in this work, there would have been no succession of day and night. Of seasonal changes there were also none.²

One thing to keep in mind is that while the later Neolithic art, out of the Ice age, proliferated with unmistakable astronomical objects, there is nothing that is even faintly *recognizable* as anything cosmological in all of *bona fide* Cro-Magnon art that has so far come to light. There are no depictions of crescent moons or radiating suns—not even the *Saturnian* sun with which this work is concerned. And why should there have been? Of Sun and Moon there were none. The *Saturnian* sun, on the other hand, was paid absolutely no attention for the simple reason it had always just hung there, neither rising nor setting, immobile in the north of heaven, doing absolutely nothing. Being born, and living their entire life, beneath its immutability, the Cro-Magnons and Neanderthals would have taken it for granted just as they did the ground beneath their feet.

INTERBREEDING: PRO ET CON

In 1982, while reviewing a controversial novel written by Björn Kurtén,³ whom he describes as “unquestionably Europe’s finest evolutionary paleontologist,” the just as famous Stephen Jay Gould could still ask the following rhetorical questions:

“Did Neanderthal evolve rapidly into Cro-Magnon on the spot? Did the Cro-Magnons migrate into Europe from elsewhere and simply murder their indigenous competitors? Did the two cooperate and interbreed, with Cro-Magnon traits eventually prevailing by natural selection?”⁴



Notched wolf bone from the Magdalenian culture of Moravia which Marshack interpreted as depicting a series of lunar notations.

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 305-320.

² *Ibid.*, pp. 351-390.

³ B. Kurtén, *Dance of the Tiger* (N. Y., 1980).

⁴ S. J. Gould, “Dance of the Tiger: A Paleomystery,” *Science Digest* (December 1982), p. 76.

One thing that seems certain is that Neanderthals and Cro-Magnons did co-exist for a time.¹ Erik Trinkaus even felt safe enough to claim that “a few members of the new breed started mating with their Neanderthal-like neighbors.” According to Trinkaus, however, this would have transpired much earlier, some 50,000 years ago, in southern Africa.²

“The children of such cross-breeding would have continued the process: each time they found a mate among Neanderthals living to the north, they would send Cro-Magnon genes a little farther toward Asia and Europe. Anthropologists have discovered fossils from Africa and Asia that do seem to be the children of such cross-breeding.”³

Then, still according to Trinkaus, once they reached western Europe, the contrasts between Cro-Magnons and Neanderthals was so great that—regardless of whichever race might have shunned the other—far less interbreeding took place between them. Even so, still according to Trinkaus, it was the competition for resources, in which he claims the Cro-Magnons were superior, that spelled the end of the Neanderthals.⁴

Diamond, on the other hand, suspects that “Cro-Magnon diseases, murders, and displacements did in the Neanderthals.” As he reasoned: “It may at first seem paradoxical that Cro-Magnons prevailed over the far more muscular Neanderthals, but weaponry rather than strength would have been decisive.”⁵ And yet, others are just as certain that there is no clear evidence that modern man had any particular advantage over earlier types.⁶

Diamond, however, is also of the opinion that:

“Some Neanderthals may have learned Cro-Magnon ways and resisted for a while. This is the only sense I can make of a puzzling culture called the Chatelperronian, which coexisted in western Europe along with a typical Cro-Magnon culture (the so-called Aurignacian culture) for a short time after Cro-Magnons arrived. Chatelperronian stone tools are a mixture of typical Neanderthal and Cro-Magnon tools, but the bone tools and art typical of Cro-Magnons are usually lacking.”⁷

This supposition was given additional weight when a skeleton that was unearthed with Chatelperronian artifacts at Saint-Césaire in France turned out to be that of a Neanderthal. As Diamond concluded: “Perhaps, then, some Neanderthals managed to master some Cro-Magnon tools and hold out longer than their fellows.”⁸

But, as in all other branches of science, not everyone agrees. According to Bar-Yosef and Vandermeersch, not only does there seem to be no evolutionary link between Neanderthals

¹ S. McCarter, *op. cit.*, pp. 34, 36.

² S. Begley & L. Lief, *op. cit.*, pp. 63-64.

³ *Ibid.*, p. 64.

⁴ *Ibid.*

⁵ J. Diamond, *op. cit.*, p. 58.

⁶ *Scientific American* (December 1990), pp. 68-74.

⁷ J. diamond, *op. cit.*, p. 59.

⁸ *Ibid.*

and Cro-Magnons, but there really was no significant development in Neanderthal tool-making for thousands of years. Nor, according to these two, did *Homo sapiens* make any appreciable progress.¹ Both races, it seems, “learned nothing new and did nothing new.”²

As for interbreeding between the two races, Diamond notes that no skeletons that could be thought of hybrids between the two have ever been discovered—although that was soon to change. By 1990, his own personal summation on the subject was that:

“If Neanderthal behavior was as relatively rudimentary and Neanderthal anatomy as distinctive as I suspect, few Cro-Magnons may have wanted to mate with Neanderthals. And if Neanderthal women were geared for a 12-month pregnancy, a hybrid fetus might not have survived. My inclination is to take the negative evidence at face value, to accept that hybridization occurred rarely if ever, and to doubt that any living people carry any Neanderthal genes.”³

But would not the Neanderthals have had their own diseases to pass on to the Cro-Magnons? Besides, there seems to be some evidence that the Neanderthals arrived on the scene after the proto-Cro-Magnons⁴—that “both anatomically modern and ‘archaic’ *Homo sapiens* existed long before the Neanderthals.”⁵ Thus, while some contend that Neanderthals and anatomically modern humans coexisted for far longer than Diamond supposes—for at least 60,000 years in fact⁶—there are others who are just as certain that the Neanderthals of the Levant and the Cro-Magnons of Europe were actually one and the same people.⁷

Trevor Palmer, for one, finds it “puzzling why there should have been no interbreeding, since the different groups seemed culturally very similar, to judge from the artifacts they left behind.”⁸ To which he added:

“One possible explanation, suggested by Luigi Luca Cavalli-Sforza of Stanford University, is that modern *H. sapiens* had developed a complex linguistic ability, whereas the archaic types (including the Neanderthals) had not...In the course of time, the archaic populations may then simply have been out-competed by the modern ones, rather than exterminated by them.”⁹

Then there is James Shreeve who, as far as the Levant is concerned, tells us that, although for perhaps 50,000 years Neanderthals and Cro-Magnons “lived side by side in the same

¹ O. Bar-Yosef & B. Vandermeersch, “Modern Humans in the Levant,” *Scientific American* (April 1993), pp. 64, 70.

² S. J. Robinson, *op. cit.*, p. 9.

³ J. Diamond, *loc. cit.*; see also *Scientific American* (December 1990), pp. 68-74.

⁴ *New Scientist* (November 26, 1987), p. 32; O. Bar-Yosef & B. Vandermeersch, *loc. cit.*

⁵ S. J. Robinson, *op. cit.*, p. 17.

⁶ “Neighbors,” *Science Digest* (September 1989), p. 45.

⁷ S. J. Robinson, *loc. cit.*

⁸ T. Palmer, *op. cit.*, p. 80.

⁹ *Ibid.*

land...for all those millennia, the two apparently had nothing whatsoever to do with each other.”¹

“If these humans were isolated in neither space nor time but were truly contemporaneous[Shreeve asks], then how on earth did they fail to mate? Only one solution to the mystery is left. Neanderthals and moderns did not interbreed in the Levant because they *could* not. They were reproductively incompatible, separate species—equally human, perhaps, but biologically distinct. Two separate species, who both just happened to be human at the same time, in the same place.”²

And:

“Cohabitation in the Levant in the last ice age conjures up a chilling possibility. It forces you to imagine two equally gifted, resourceful, emotionally rich human entities weaving through one tapestry of landscape—yet so different from each other as to make the racial diversity of present-day humans seem like nothing. Take away the sexual bridge and you end up with two fully sentient human species pressed into one place, as mindless of each other as two kinds of bird sharing the same feeder in your backyard.”³

Thus Shreeve ends his insightful speculation by suggesting that these two human species “may have shared a small, fertile piece of land for 50,000 years, *regarding each other the whole time with steady, untroubled, peaceful indifference.*”⁴ And, if this is true of the Levant, why cannot it be true for Europe?

But then the see-saw of scientific opinion: Earlier, in 1998, it was being argued that fossil skulls from France and Israel—the very Levant discussed by Shreeve—*does* seem to indicate that there *may* have been some interbreeding between modern humans and Neanderthals.⁵ In Portugal, too, there was discovered the skeleton of a young child which showed a mixture of characteristics.⁶ True enough, by 2001 it could still be reported that Neanderthals were an evolutionary dead end. As one science reporter had it: “If interbreeding between Neanderthals and our ancestors occurred, offspring (if any) must have been sterile.”⁷ Milford Wolpoff did not agree.

“Of course, there are no Neanderthals left today [he wrote]. And people like to use that as a demonstration that they went extinct like the dodo birds. But that ignores the process of evolution.”⁸

¹ J. Shreeve, “The Neanderthal Peace,” *Discover* (September 1995), pp. 71 ff.

² *Ibid.*, p. 79 (emphasis as given).

³ *Ibid.*

⁴ *Ibid.*, p. 81 (emphasis added).

⁵ *Scientific American* (January 1998), p. 20.

⁶ “Neanderthal Heritage,” *Chronology & catastrophism Review* (1999:2), p. 41.

⁷ P. Standring, “Eve’s Seven Daughters.” *Chronology & Catastrophism Review* (2001:2), p. 49.

⁸ K. Wright, *op. cit.*, pp. 26-27.

"Over time, more and more genes came into Europe and mixed with Neanderthal genes," Wolpoff went on. "And the proportion of Neanderthal genes became lower and lower."¹ To prove his point, Wolpoff published an analysis of 25 fossil skulls which he claimed hinted at a mixed ancestry between moderns and Neanderthals. He also claims that many Neanderthal features persist to this day in modern Europeans. "The Neanderthals became extinct like the Cro-Magnons became extinct: because of mixing with other populations," he says. "Their physical form is gone, their culture is gone, but their genes are still among us." For whatever it might mean, it should, however, be pointed out that the 25 skulls analyzed by Wolpoff did not all come from Europe. Some of them came from as far away as Australia.²

Ian Tattersall calls all this wishful thinking. "It's always possible that some hanky-panky may have occurred," he is willing to allow. "But it wasn't evolutionary significant."³

But what, then, of DNA? As noted above, DNA extracted from Neanderthal bones does not match that of modern humans. But then, DNA extracted from the remains of an early Australian failed to match with contemporary DNA.⁴ So what does the lack of DNA matching prove?

To his credit, Shreeve does not use his theory to account for the extinction of the Neanderthal race. As he confesses: "Why they faded and we managed to survive is a separate story with its own shocks and surprises."⁵ Others still claim that the Neanderthals "may simply have been absorbed by interbreeding."⁶ That Neanderthals were exterminated by the Cro-Magnons does not seem probable. Had there been intensive fighting between the two races, "you'd think there would be evidence of violent death," says Steve Kuhn. "But there's not."⁷ But here, an additional problem rears its ugly head in that Neanderthals seem to have persisted in western Europe long after they had disappeared from the eastern part of the continent.⁸

Is Wolpoff, however, correct when he claims that the Cro-Magnons became as extinct as the Neanderthals? The problem here is that the term "Cro-Magnon" is often used to denote all of Paleolithic *Homo sapiens* when the possibility exists that the *original* Cro-Magnons were not really the same as us. That is why some distinguish a separate *proto-Cro-Magnon* breed, while others talk of Cro-Magnon types "A" and "B," the latter of which are believed to have survived through the Mesolithic into the Neolithic age.⁹ And here there is something else that poses something of a mystery. There is no doubt that *Homo sapiens* made it safely out of the Ice Age. But the exquisite European art for which the Cro-Magnons have become so famous did not survive. The tools of *Homo sapiens* continued to improve. His art, however, deteriorated into crudity and did not rise to its former glory—even if in a different

¹ *Ibid.*, p. 27.

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

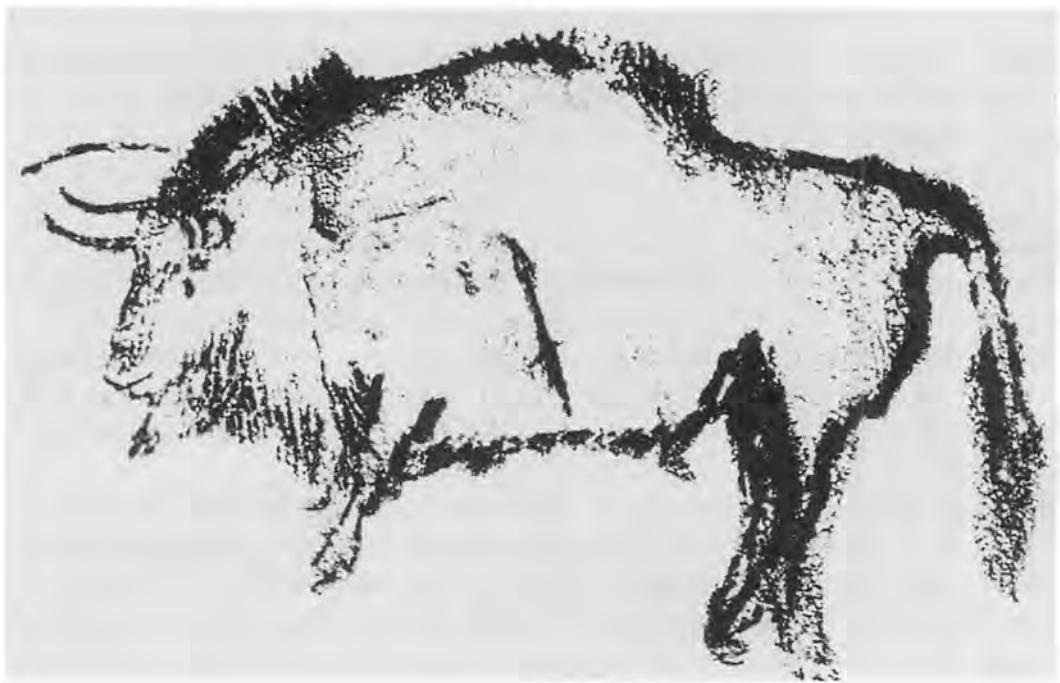
⁵ J. Shreeve, *loc. cit.*

⁶ "Neanderthal Heritage," see above.

⁷ K. Wright, *loc. cit.*

⁸ T. Palmer, "The Erratic Descent of Man," *Chronology and Catastrophism Review* XII (1990), p. 20.

⁹ M. Gimbutas, *The Goddesses and Gods of Old Europe* (London, 1982), p. 27.



Bison painted on the wall of a cave from the Magdalenian culture, Niaux, France.
Why did such an anatomically accurate and distinctive style disappear at the end of the Ice Age?

style—until the beginning of civilization. What happened? Did the best Cro-Magnon artists all die out at the end of the Ice Age?

CATASTROPHIC SIGNATURES

Theories concerning the extinction of the Neanderthals have not been in short supply. Among the promulgated causes, disease, armed conflict, competition for resources, displacement, and interbreeding have been at the forefront. Others, realizing that not one of these could on its own have been enough to erase this robust race right off the face of Europe, have sought a combination of two or more of the above postulates. But every cause that has been suggested has also been opposed. Finally, there are those who have come to the realization that the cause could not have had anything to do with the races themselves. The blame, they claim, must be laid at the door of the environment.

Sediment and pollen analyses between Mousterian and Chatelperronian sites, for instance, indicate the onset of a warmer climate. Thus the emergence of the Aurignacian period is thus believed to have been accompanied by a climatic change.¹

¹ A. Leroi-Gourhan, "From Neanderthal Man to *Homo sapiens sapiens*," in C. Flon (Ed.), *The World Atlas of*



Bellowing bison from the cave of Altamira.
(Illustration after Abbé Breuil.)

Judging by finds in India, this change of climate is then blamed on a catastrophic event. Sand and a stratum of red clay covers the remains from the Lower Paleolithic in Pushkar in the Thar Desert. The nature of this "soil" indicates that it must have borne substantial vegetation, which implies an ample supply of surface water.¹ Remains of *Homo sapiens sapiens* are to be found on top of this red clay, again indicating a change of climate. The clay itself, however, must have been carried there by what some consider to have been a catastrophic flood.

A similar situation is met with in the Potwar plateau between the Indus and the Jhelum rivers in the northern Punjab. Neanderthal strata are here covered by a loess deposit,² which

Archaeology (London, 1985), p. 26.

¹ B. & R. Allchin, *The Rise of Civilization in India and Pakistan* (Cambridge, 1982), p. 19.

² *Ibid.*, p. 18.

also seems to call for a sudden flooding of the area. Moreover, this same region "is complicated by rapid uplift of the Himalayas, Tibetan plateau, Pamirs and other mountain ranges."¹ It thus seems evident that sudden floods were not the only catastrophic events that were taking place toward the end of the Paleolithic age.

From South America we have the evidence from numerous caves scattered across Brazil in which an untold number of bones in broken condition mixed with red earth were excavated. Thousands of these broken bones belonged to small animals, but others belonged to such Pleistocene fauna as the *Megatherium*, *Mylodon*, *Toxodon*, *Smilodon*, *Protopithecus*, the giant armadillo, and the flightless emu and rhea. Human bones were also discovered mingled with those of extinct cave jaguars, horses, and llamas.²

"One cave was especially noteworthy for yielding the bones of over fifty human beings of both sexes and every age from infant to decrepit old man. Their skeletons lay buried in hard clay and were discovered mixed together in such confusion—not only with each other but with *Megatherium* bones and those of other late 'Pleistocene' animals—as to preclude the idea that they had been buried by human agency. All the remains, both animal and human, possessed the same chemical composition, thereby indicating the contemporaneity of all the individuals represented."³

What is of interest to us, however, is that the human skulls have been judged by anthropologists as having belonged to the same distinctive type as the "old" European Neanderthal race.⁴ Needless to say, such broken and jumbled remains mixed with red clay presupposes a catastrophic flood that would have swept away all these denizens to deposit them pell-mell into the caves in which they have been found.

But why should such upheavals have terminated the Neanderthal legacy while leaving the Cro-Magnon one intact?

GLACIAL CLEMENCY

Leaving floods and tectonic upheavals aside for a while, let us look a little closer at the postulated change of climate. To begin with, how cold was it really during the Ice Age?

According to the geochemists Samuel Epstein and Crayton Yapp, the analyses of heavy hydrogen in ancient wood samples indicate that temperatures in North America in those areas not actually covered by ice at the height of the Pleistocene Ice Age were higher than they are today.⁵

Sharon Begley and Louise Lief also tell us that while glaciers covered most of northern Europe, the climate "was generally mild, and the animal life was as rich and diverse as in a modern African game park."⁶

¹ *Ibid.*, p. 14.

² D. S. Allan & J. B. Delair, *Cataclysm!* (Santa Fe, 1997), p. 116 where the pertinent sources are supplied.

³ *Ibid.*

⁴ *Ibid.*

⁵ J. White, *Pole Shift* (N. Y., 1980), p. 12.

⁶ S. Begley & L. Lief, *op. cit.*, p. 64.



Megatherium, the remains of which were discovered with those of Neanderthals in a
Brazilian cave.
(Illustration by Bob Giuliani.)

One of the most important of Pleistocene sites is to be found in Ladd's Quarry near Cartersville. Among the remains discovered there were those of the giant sloth, the jaguar, and the spruce grouse. The wonder here is that these denizens now inhabit much more southerly regions. The jaguar, for instance, is not now found further north than Mexico. This has led authorities to the conclusion that the Ice Age could not have been a time of severe climate. According to the paleontologist Alan Holman, the weather then must have been generally mild.¹

To be sure, this situation had been known, although mostly ignored, since 1899 through the study of Greenland flora which is believed to have survived from pre-glacial times. As R.

¹ Houston Chronicle (November 20, 1985), as cited in *Chronology & Catastrophism Workshop* (1987:1), p. 22.

F. Scharff had indicated, this would mean that the glacial epoch was much less severe than it had commonly been assumed.¹

By the year 2000, authorities were softening up. "People make the mistake of thinking the Ice Age was cold all the time," said James Adovasio. "They remember the 40,000 Januaries but forget the 40,000 Julys."² But if, as we claim, there was no progression of seasons, there could have been neither Januaries nor Julys. If the weather was balmy, it would have had to have been balmy all the time.

Two years later, the above theory was amended somewhat. It was still being said that the last Ice Age, "from 120,000 to 10,000 years ago, was not in fact always cold." But now, Januaries and Julys were not brought into the picture. Instead, "20 brief interludes" were introduced during which "temperatures shot up 10 to 18 degrees within a decade." This, say Andrey Ganapolski and Stefan Rahmstorf, came about through chaotic weather variations, brought about by the change of direction in the Gulf Stream, which "occasionally triggered a cascade of changes that switched temperatures from cold to warm."³ It is forgotten that sub-tropical, tropical, and even equatorial flora and fauna from Arctic areas would not have been able to endure the cold between those "20 brief interludes."

If, then, we were to set aside the Januaries, Julys, and "brief interludes," none of which are compatible with the evidence, we will be left with a balmy weather during the Ice Age except for those areas which were actually covered with glaciers, upon which, needless to say, neither the Neanderthals nor the Cro-Magnons seem to have ever set up camp. At the end of the Ice Age, if anything, temperatures should have risen higher still. How, then, could a change of climate—which could not have grown colder—be made to account for the disappearance of any one, or both, of these two races? We therefore seem to be left with but one of the alternatives touched upon above: catastrophic flooding accompanied by tectonic uplifts. But what could have caused such a catastrophe?

¹ R. F. Scharff, *The History of the European Fauna* (London, 1899), pp. 76-77, 163.

² S. Nemecek, "Who Were the First Americans?" *Scientific American* (September 2000), p. 84.

³ F. Saunders, "Chaotic Warnings From the Last Ice Age," *Discover* (June 2002), p. 14.

Setting the Stage

ANCIENT MAN IN ARCTIC REGIONS

In 2001, although wedded to an entirely different theory, Flavio Barbiero could still note that:

“The current ‘scientific’ explanation for the existence of [the] ice caps is that they were due to a cooler climate all over the world. But this theory is contradicted by the absence, during the ‘ice age’ of ice sheets in Siberia, which was actually populated, up to its northernmost regions, well inside the Arctic Sea, by one of the most impressive zoological communities of all times. Millions (more than 40 millions, according to F. C. Hibben) of mammoths roamed Siberia and Alaska, large animals the size of which can be found today only in tropical regions, or in those areas where the supply of fodder is guaranteed all the year round. Together with the mammoths, there were reindeers, rhinos, hippopotamus, bears, lions, leopards and Prjevalsky horses. There were also giant beavers and sloths, big horn deer, camels, [saber-toothed] tigers, buffaloes, [auroch] bulls and many more: strong evidence that the climate in Siberia was much milder than today...”¹

The presence of man in this same area at the same time is also accounted for. Neanderthal and Cro-Magnon sites have been discovered strewn all over the place south of the Pleistocene glacial demarcation. None have yet come to light from those areas which were covered with glacial ice. The glaciated region seems to have formed a girdle, roughly between latitudes 60° and 40°, a massive belt stretching midway around the northern hemisphere. Both the areas above this belt, that is the Arctic, and below it, remained free of ice except for the peaks of some of the highest mountains.

Cro-Magnon remains, it is true, have also been found in Alaska, but this region of Beringia remains controversial, with some claiming and others disclaiming that it had been glaciated at the time of the crossing from Siberia. There is, however, additional evidence from south eastern Alaska which speaks against those who are still of the belief that this portion of Beringia was under ice during the time in question. This comes from remains in a cave which “indicate that plants and animals were still living there.”²

¹ F. Barbiero, “Changes in the Rotation Axis of Earth After Asteroid/Cometary Impacts and their Geological Effects,” *Fifty Years After Worlds in Collision by Velikovsky: Classical and New Scenarios on the Evolution of the Solar System* (Bergamo, 2002), p. 89.

² “Secrets of the Ice Age,” *Chronology & Catastrophism Review* (2001:2), p. 43.

Only heaven knows what human sites might still lie buried beneath the *present* permafrost of Arctic lands. Even so, these lands have not been entirely reluctant to disclose their secrets. As we have already seen, bone tools have been discovered in the lowlands close to Bluefish Caves, suggesting that hunters stalked the Yukon as early as 40,000 years ago at the very peak of the last Ice Age.¹

Primitive stone tools, as well as the remains of a prehistoric camp, dated as early as 2300 B.C., have shown up on Ellesmere Island.²

More tools, including an incised mammoth tusk, dated at older than 30,000 years, have been discovered in Russia's Arctic regions.³

Stone tools, similar to those retrieved in East Africa, obviously worked by man, have been unearthed at various sites beneath the permafrost in present Siberia.⁴ Traces of Stone Age settlements, containing "bone implements and arrowheads, as well as needles and axes skillfully fashioned from mammoth tusks," have also been found in the New Siberian Islands.⁵

Prehistoric petroglyphs depicting the "well preserved incised outlines of whales and deer" are still to be seen on the cliffs of Spitzbergen.⁶ Ancient rock paintings have been discovered at river sites all the way from Scandinavia to Siberia. "The drawings show changes of style and subject over the centuries that suggest a pattern of evolution in the preoccupations and way of life of early man," A. P. Okladnikov reported in 1969. "Furthermore, they indicate that there was communication or commonality of some kind among the nomadic northern tribes over the wide region from the Baltic to the Far East."⁷

The earliest of these petroglyphs, depicting horses and bison, found near Shishkino on the Lena River, compare favorably in style with the Aurignacian cave drawings of France. But then: "As the ice age waned and the land changed, so did the animals depicted in the rock drawings." At Shishkino, the Aurignacian style was replaced by that of the Mesolithic age, with drawings of reindeer superimposed on the figure of the earlier bison, with the elk becoming the dominant figure in the even later Neolithic age.⁸ Also during the Neolithic period, with which we are not yet concerned, the male human figure took prominence over that of the female. Animals became secondary in eminence.⁹ A change of focus had obviously taken place.

There is no point in belaboring the issue. Enough has been said. Even so, Arctic regions temporarily aside, what was it *really* like during our postulated scheme beneath the polar

¹ H. Pringle, *In Search of Ancient North America* (N. Y., 1996), pp. 15-16.

² P. Schledermann, "Eskimo and Viking Finds in the High Arctic," *National Geographic* (May 1981), pp. 581-584.

³ "Why Are They Always Older?" *Chronology & Catastrophism Review* (2002:1), p. 36.

⁴ *Science Frontiers*, No. 92, p.1, as cited in *Chronology & Catastrophism Workshop* (1994:2), p. 29.

⁵ C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), p. 102.

⁶ *Ibid.*

⁷ A. P. Okladnikov, "The Petroglyphs of Siberia," *Scientific American* (August 1969), reprinted in *Scientific American Offprints*, #649, p. 3.

⁸ *Ibid.*

⁹ *Ibid.*, p. 4.

Saturnian sun? Better still, what did man himself had to tell us about these times?

THE MYTHO-HISTORICAL CONNECTION

Since man came into his being *during* the Ice Age, it would not have been possible for him to have remembered its onset. But what of his existence during its course of time? In writing about ice ages, Windsor Chorlton could not help but note a class of Scandinavian myths which describe Earth and the heavens as having been “made from the body of a great frost giant who materialized out of mists rising from melting ice—ice that had once imprisoned the entire universe.”¹ He then goes on to state that:

“Perhaps such tales represent ancient memories of the Ice Age; if so, they are among the few folkloric allusions to the glacial past. Although fully modern humans witnessed the waning of the most recent ice age, even the oldest legends contain no images of retreating glaciers or warming climates. People of many cultures tell each other of cataclysmic floods that once covered the world with water, but never speak of a time when towering ice sheets blanketed much of the earth.”²

We should not blame Chorlton for this naïve generalization since, after all, even he had just told us of the Scandinavian belief in ice that had once imprisoned the entire “universe.” It is not true, however, that the mytho-historical record has nothing to say about “retreating glaciers and warming climates.” In fact, such a sequence is contained in the very Scandinavian tales he himself referred to. Although by the time the *Voluspa* was put into writing the events which concern us had long passed away, enough of early man’s memory was retained, even if in a somewhat ambiguous fashion. This very *Voluspa* speaks of an original land of ice, darkness, and mist situated in the north. From the south, rivers flowed toward the land of ice, where they became frost-bound and died in the icy vastness. But later, so these legends proclaim, there arose a south wind which brought warm air with it and the ice was melted.³

One may think that, coming from the geographical area of Scandinavia, snow and ice would feature prominently in their mythology, although, to be sure, they do not feature that prominently in the sagas of other northern people. But what, then, of the Jewish nation? Did they not also preserve a memory of Earth’s primeval cold? In recounting the sequence of Creation as supposedly received from his god, Enoch spoke of “the treasure houses of the snow” and “the storage houses of the cold.”⁴ In a different tract, Yahweh is also made to ask Job:

“Out of whose womb came the ice and the hoary frost of heaven, who hath gendered it? The waters are hid as with a stone and the face of the deep is frozen.”⁵

¹ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 83.

² *Ibid.*

³ P. Grappin, “Germanic Lands: The Mortal Gods,” *Larousse World Mythology* (London, 1972), p. 362.

⁴ *The Book of the Secrets of Enoch* in W. Barnstone (Ed.), *The Other Bible* (N. Y., 1984), pp. 7-8.

⁵ Job 38: 28-29.

Much later, Moses, too, was said to have received similar information from Yahweh who told him of the storehouses of snow and hail.¹ In fact it has long been known in Jewish sources that snow was one of the primordial elements.² Earth, according to the legends of this ancient nation, was created “from the snow under the Divine Throne,”³ which Divine Throne is here understood as that of Yahweh/Elohim, already identified as the proto-Saturnian deity. In some sources, even the heavens were said to have been created “out of the heap of snow.”⁴ And why not—was that not from where the snow was seen to fall?

It is not that these snippets of ancient belief in any way prove that the ancestors of the Jews were ever cognizant of an ice age in which their world had once been enveloped. But they do indicate an awareness of snow and cold which the legends themselves connect with that time that was to become known to all ancient nations as *the beginning*.

Half a world away, the Amerinds *do* recollect a time when their ancestors lived in a colder climate. The Achomawi who lived in California, hardly an area that is now subject to frigid temperatures, tell how their creators were obliged to bring warmth to the land because “the Indians were freezing.”⁵ So, also, with the Shastika from the same geographical region.⁶ In the traditions of the Chippewa of western Ontario, it is told how the creator attempted to fashion the world on three separate occasions, failing each time because there was too much ice, before he succeeded on the fourth. More than that, they tell of the rapid melting of the ice and the disastrous rise in water levels in lakes and rivers, which culminated in the near-extinction of life.⁷

Or take the Pygmies of Africa’s equatorial forests, not quite the place where freezing cold should be memorialized in myth. As Jean-Pierre Hallet stressed: “Winter never comes to the equatorial forest in which the Pygmies tell numerous legends of ‘the terrible cold, the killer cold’ that ravaged the ancient world.”⁸ One of these legends, for instance, relates:

“The men had left their village. But they were not happy, they were hungry, they were thirsty, they were cold. They were cold, and that, that was the worst of all.”⁹

“To the best of my knowledge,” Hallet noted, “no anthropologist has bothered to ask how the Central African Pygmies came to possess legends that seem more appropriate to Eskimos.”¹⁰ It is thus apparent, as in fact it has been pointed out by others, that the African Pygmies did not originate in equatorial Africa, as neither could all those people from southern latitudes who have retained a memory, no matter how dim, of the Pleistocene Ice Age.

¹ L. Ginzberg, *The Legends of the Jews*, Vol. III, (Philadelphia 1968), pp. 162, 232.

² *Ibid.*, Vol. V, p. 22.

³ *Ibid.*, Vol. I, p. 8; Vol. V, pp. 7, 8, 70.

⁴ *Ibid.*, Vol. V, p. 17.

⁵ R. Van Over, *Sun Songs: Creation Myths From Around the World* (N. Y., 1980), p. 33.

⁶ *Ibid.*, p. 34.

⁷ V. Deloria, Jr., “Catastrophism and Planetary History,” *KRONOS* III:4 (Summer 1978), p. 49.

⁸ J.-P. Hallet (with A. Pelle), *Pygmy Kitabu* (N. Y., 1973,) p. 259.

⁹ *Ibid.*

¹⁰ *Ibid.*, p. 259.

THE LORD OF TIME

With a sun that stood perpetually still in Earth's north celestial pole, and with no other visible body in the sky, ancient man would have had no means of telling time. Although this topic was discussed at length in our previous volume,¹ it does no harm to include a few additional snippets, if for no other reason to keep the reader acquainted with the nature of the environment we are presently concerned with. The Hindus, for instance, could still speak of that time when "there was only darkness wrapped in darkness...nor was there then the torch of night and day."²

In Mesoamerica we meet with the Mayan Itzamna, "he who 'emits light,'"³ also known as the Lord of Time.⁴ Itzamna compares favorably with the Greek Kronos, that is Saturn, who, as Chronos, was also revered as the Father of Time.⁵ Ken Moss has ably shown that, as the "supreme Maya creator god" and the Father of Time, Itzamna's identity as a Saturnian deity is well established.⁶

Of passing interest to our thesis is the strange fact that the Hopi possess a rich language which, however, "contains no reference to 'time,' either explicit or implicit."⁷

THE HIGHEST ANTIQUITY

In setting the stage for what is to come, the *dramatis personae* up to this point consist of a conglomeration of Neanderthal and Cro-Magnon tribes, sometimes in conflict with each other, living in separate areas, north and south of the glaciated belt of the Pleistocene Ice Age. Thriving in the semi-darkness of a perpetual dawn, with a solitary dim sun that never moved, they could not have known how long they had existed there, how long they expected to live, or how long those who passed away had been dead.

Just because vegetation and game were plentiful in a balmy climate, we must not assume that Paleolithic man lived in peace with his neighbors. The Cro-Magnons might not have exterminated the Neanderthals but, whether they interbred or not, it is not reasonable to assume that there would not have been sporadic internecine conflicts between them. After all, even with the rise of civilization, strife remained at the forefront of man's activities, a situation that continues into the present. Ancient man remembered this condition and passed it on to his descendants.

The Sumerians, for instance, tell us that in the most primeval of times, the men of "ancient days" did not know of "tents of habitation."⁸

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 305-320.

² M. Eliade, *Gods, Goddesses, and Myths of Creation* (N. Y., 1974), p. 110.

³ G. Annequin, *The Civilization of the Maya* (Geneva, 1978), p. 144.

⁴ M. D. Coe, "Native Astronomy in Mesoamerica," in A. Aveni (Ed.), *Archaeoastronomy in Pre-Columbian America* (Texas, 1975), p. 23.

⁵ For Chronos as Kronos, see D. Cardona, *op. cit.*, pp. 47, 170, 239, 263, 306-307, 309.

⁶ K. Moss, "Maya Cosmos: A Saturnian Interpretation," *AEON* VI:1 (February 2001), pp. 82 ff.

⁷ A. de Grazia, *Homo Schizo II* (Princeton, N.J., 1983), p. 170.

⁸ S. H. Langdon, *Semitic Mythology*, Vol. V of *The Mythology of All Races* (N. Y., 1931/1964), p. 191.



The Chippewa, deeply religious members of the Algonkian confederation, tell how the creator attempted to fashion the world on three separate occasions, failing each time because there was too much ice, before he succeeded on the fourth. Shown above is an Algonkian shaman preparing medicine in his bark-covered wigwam.
(Illustration by Peter F. Copeland.)



Although the Hopi possess a rich language, they have no word for "time."

Shown above: Hopi priest and woman.

(Illustration by Peter F. Copeland.)



**Itzamna—head of the Maya pantheon—
he who emits light—supreme creator—
Lord of Time.**

"The people in *reed huts* (?) made their devotions. Like sheep...they ate grass, and they drank *rain-water*. At that time...the goddess of flocks and the Grain-goddess had not been made to thrive."¹

During the time of Alexander, himself a warmonger of the highest class, the Babylonian priest Berossus was still writing of "the remote past" when "men lived in lawless manner like the beasts of the field."²

The ancient Egyptians, too, remembered such a time before they were civilized by Osiris. Men "were but savages," Donald Mackenzie paraphrased an Egyptian text. "They hunted wild animals, they wandered in broken tribes hither and thither, up and down the valley and among the mountains, and the tribes contended fiercely in battle. Evil were their ways and their desires were sinful."³ Diodorus even hints that the pre-civilized Egyptians were not averse to cannibalism, and, in later times, it was said that Osiris had to forbid men to eat each other.⁴

The Chinese were no different in keeping alive the memory of an "'ancient' period during which life was still very primitive."⁵

"Formerly the ancient kings had no houses [the Chinese *Li Ki* states]. In winter they lived in caves which they had excavated, and in summer in nests which they had framed. They knew not yet the transforming power of fire, but ate fruit of plants and trees, and the flesh of birds and beasts, drinking their blood, and swallowing also the hair and feathers. They knew not yet the use of flax and silk, but clothed themselves with feathers and skins."⁶

Michel Cartier could not believe that the description of this legendary society could have been based on what the ancestors of the Chinese actually remembered and passed on by word

¹ *Ibid.*

² *Ibid.*, p. 103.

³ D. A. Mackenzie, *Egyptian Myth and Legend* (N. Y., 1907/1978), p. 15.

⁴ E. A. W. Budge, *Osiris & the Egyptian Resurrection* (N. Y., 1911/1973), p. 167.

⁵ M. Cartier, "Historical Myths or Mythical History?" *Comparative Civilizations Review*, No. 20 (Spring 1989), p. 64.

⁶ *Li Ki*, VII:1

of mouth through the generations. The identification of such a society “with a state of savagery still very close to animality,” wrote Cartier, “does not really fit with the cultural evidence discovered by the Chinese archaeologists.” And: “The images of a ‘savage’ society antedating the invention of the rituals has no more historical foundations than the representatives of a primitive mankind imagined by Lucretius or Jean-Jacques Rousseau, to which they are very close, and which, until a very recent time, were considered in Europe as a reliable substitute for pre-history.”¹ And yet Cartier could not help stating that:

“The works of the Legalist philosophers are *the most sophisticated Chinese representations of historical development. This is especially true of a set of texts which attempt to reconstruct a primitive stage, vividly depicted either as an affluent society or one in which humans and animals are almost the same. They provide rational accounts of the transition from this stage to a more elaborate ‘feudal’ (fengjian) age...*

“The notion of a ‘primitive’ society, a stage usually ascribed to the ‘highest antiquity’...shares several traits with the description proposed in the section of the ‘Li-yun.’ The primitive men were nest builders living in trees, did not know how to light fire, or at best produced fire through friction, had to fight wild beasts with their bare hands, or at best with clubs and very simple weapons...they had to live on a diet of ‘fruit of plants and trees,’ herbs or raw meat and cover their bodies with ‘the skins of birds and animals’.”²

Unfortunately Cartier assumed that the different society, described as affluent and living in harmony with the land, bears a better resemblance “with the prehistoric society reconstructed through the evidence of [Chinese] archaeology,” and that this “makes more sense as a starting point for an evolutionary process.”³ But the affluent society which Cartier finds more acceptable was actually one that followed the primitive society of an earlier age—an affluent society which is spoken of in the mytho-histories of every ancient race, and which mythologists usually refer to as the Golden Age.

That the ancestors of the Chinese were “nest builders living in trees” is not impossible. It is more likely, however, that they simply built shelters made of twigs upon the ground, similar to the reed huts of the proto-Sumerians mentioned above, which shelters were later remembered as nests, and, later still, believed to have been in trees.

To believe that the Chinese *invented* these hoary tales is to ignore the similarity they bear to those told by the indigenes of both terrestrial hemispheres. Lucretius and Rousseau aside, all these tales and the sequential events they tell bear too much similarity to be relegated to the realm of philosophical creativeness. After all it was no different on the other side of the world as the Peruvians well remembered and had it written in their records:

¹ M. Cartier, *op. cit.*, pp. 64-65.

² *Ibid.*, p. 65 (emphasis added).

³ *Ibid.*, p. 66.

"Where we live now we see villages and cities; we see streams flowing down from the mountains, and being led this way and that way to water our crops and our trees; we see flocks of llamas feeding on good grass with their lambs—countless flocks. But in those days we lived where there were thickets and barren rocks; we had no llamas; we had no crops; we knew not how to make the waters flow this way and that way; we had no villages, no cities, no temples. We lived in clefts of the rocks and holes in the ground. The covering of our bodies was of bark or of leaves, or else we went naked...We ate roots that we pulled up out of the ground, or fought with the foxes for the dead things they were carrying away. No one bore rule amongst us, and we knew nothing of duty or kindness of one to another."¹

MAN IN DARKNESS

The Egyptians also remembered the perpetual semi-darkness which the dim sub-brown dwarf star that was proto-Saturn shed on Earth during this primordial time.² Needless to say, this was no different on the other side of the world. In speaking of the prehistoric peoples of South America, Harold Osborne tells us:

"Some mythological cycles feature a primitive age of darkness *before the existence of the sun*, when human beings lived in a state of anarchy without the techniques of civilized life. Sometimes myths in this category appear to embody a confused racial memory of a hunting and food gathering stage."³

Osborne is here referring to Pedro de Cieza de Leon who compiled his notes from what the Callao Indians recounted to him at the time of the Spanish conquest, and which he recorded in his *Cronica del Peru*, from which the following is lifted:

"They say that men lived in those times in a state of disorder, many went naked like savages; they had no houses or other dwellings than caves...and from these they went forth to gather whatever they could find to eat in the countryside. Some made fortresses, called *pucara*, in the highlands and they sallied forth from these to fight one another. Many were killed and they carried off the spoils and women of the conquered. They were in a state of anarchy without political cohesion and had no overlords but only petty chiefs who led them into battle. Their clothing was primitive, but they say that the headbands of *llautu* by which one tribe is nowadays distinguished from another were used even then...these Indians relate a thing more noteworthy than anything else that they say. They assert that they were a long time without seeing the sun and, suffering much hardship from this, they offered prayers

¹ R. Van Over, *op. cit.*, p. 112.

² *Coffin Texts*, Spell 316.

³ H. Osborne, "South American Mythology," *Mythology of the Americas* (London, 1970), p. 294 (emphasis added).

and vows to those whom they held for gods, beseeching of them the light they lacked..."¹

Something similar is told by the Sia Indians of New Mexico who speak of a time when "it was still dark, but the people...made houses for themselves by digging in the rocks and the earth."² It is understandable that, in the telling of these times, long after the event, the severity of the darkness became exaggerated. Thus the same Sia relate that they "could not build houses as they do now, because they could not see."³ Nor were the Sia the only people who fell prey to this exaggeration. The Cherokee also believed that:

"In the beginning there was only blackness, and nobody could see anything. People kept bumping into each other and groping blindly."⁴

It might be pointed out by some that tales, especially those which have entertainment value, have been known to spread from one society to another. This has been amply demonstrated by Frank Dobbins through the tale known mostly as "The Story of the Master Thief," variations of which are found in the northern countries of Europe, Scotland, Spain, and even Egypt.⁵ No one, however, could ever have believed these tales. They were witty, even humorous, but beyond belief in any of their variants. As argued extensively in our previous volume,⁶ it is different when it comes to mythology, especially that which deals with origins. It is not that mythological ideas were not transferred from one race to another, but they mostly took hold among those to whom they were transferred precisely because they accorded with their own traditions. As Frank Manuel stressed: "Those who held for the autonomous invention of culture, myth, and religion granted that some details were transferred, but they contended that fundamentally myth-making was a stage in the history of reason common to all people."⁷ Much later, as Manuel tells us, "the myths themselves, once having been committed to writing, were preserved by national pride since they described a people's version of the origin of things."⁸ Only later still were "symbolic interpretations...grafted onto these ancient myths" wherewith "they were made to teach virtue."⁹

In passing, I would like to touch upon the hormonal malady known as Seasonal Affective Disorder—SAD for short—which affects some people during winter months. This malady takes the form of a winter-long depression, which seems to be related to the body's inner clock known as the circadian rhythm. Those suffering from the syndrome are often inclined to spend as much time in bed as possible, often pulling the covers over their head, right

¹ *Ibid.*, pp. 328, 330.

² R. Van Over, *op. cit.*, p. 36.

³ *Ibid.*

⁴ R. Erdoes & A. Ortiz, *American Indian Myths and Legends* (N. Y., 1984), p. 154.

⁵ F. S. Dobbins, *Error's Chains: How Forged and Broken* (N. Y., 1884), pp. 37 ff.

⁶ D. Cardona, *op. cit.*, pp. 35 ff.

⁷ F. E. Manuel, *The Eighteenth Century Confronts the Gods* (Cambridge, Massachusetts, 1959), p. 46.

⁸ *Ibid.*

⁹ *Ibid.*

through the winter months. Dramatic changes in sleep and appetite, low energy, irritability, an aversion to normal pleasures, and even social withdrawal are other symptoms of this depression. In the late 1980s, Morton Miller and his associates at the Lahey Clinic in Burlington, Massachusetts, discovered that the light-sensitive hormone melatonin influences brain signals in the hypothalamus. They have since then learned to treat patients by exposing them to specially designed lights for several hours each morning. This light therapy seems to be effective in resetting a person's circadian rhythm with noticeable improvement within a few days.¹ I hate to stretch matters beyond their logical limit, but, seeing as this disorder is light-oriented, one wonders whether it might not be a throw-back to the primordial age of darkness.

¹ "Hibernation Blues," *Science Digest* (May 1989), p. 79.

The Circumstellar Disk

CHAOS

There are two aspects of the proto-Saturnian sub brown dwarf star we discussed in our first volume which have not yet received mention in the present one. Also, as I have often said before, ours is a precarious position in that our model and scenario is not one that can be easily embraced by most members of academia so that we are, perhaps more than others, compelled to supply as much evidence as we possibly can. One of the items in question is the placental cloud, or circumstellar disk, that circled the proto-Saturnian sun.

As we noted in our previous work, proto-Saturn's circumstellar disk was *inter alia* remembered as a chaotic nebular cloud and thus received the name of Chaos.¹ This entity called Chaos was seen as being so mysterious that entire tracts have been written about it. It was perhaps the only celestial item the ancients had difficulty in describing and/or symbolizing. Believed by some to have had no origin, it was obviously related to the darkness in the sky in which it was seen to float, and was thus often discussed together with it. In the Gnostic treatise known as *On the Origin of the World*, its unknown writer resorted to apologetics in an attempt to fathom the object in question.

"Since everyone—the gods of the world and men—say that nothing existed prior to Chaos, I shall demonstrate that they all erred, since they do not know the structure of Chaos and its root. Here is the demonstration:

"If it is agreed by all men concerning Chaos that it is a darkness, then it is something derived from a shadow. It was called darkness.

"But the shadow is something derived from a work existing from the beginning.

"So it is obvious that the first work existed before Chaos came into being."²

In this we can catch a glimpse of the struggle the writer of this treatise was going through in trying to both understand and justify what the ancient ones had said concerning Chaos. That Chaos was a name of Janus, although often left unmentioned by mythologists, we know

¹ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 262-263.

² W. Barnstone (Ed.), *The Other Bible* (N. Y., 1984), p. 63.

from Ovid.¹ Just as often left unmentioned is that Janus was identified with the Greek Kronos and called by the name Saturnus, as we know from Joannes Lydus.²

TAO

The Gnostics were not the only ones who had difficulty in understanding the nature of this nebular cloud. Lau-tzu (Lao-tse, Lao-tze), who finally named it Tao, was just as puzzled and, in his attempt to define it, just as apologetic.³ Whether Lau-tzu had meant it as such from the beginning, his obsession with Tao eventually led to China's most ancient belief system. Although it originally looked upon the stars as its divine assembly,⁴ Taoism was to append various deities as time went by. It is in fact quite apparent that the greater portion of Chinese divinities are of Taoist derivation.⁵ Not all of these are of ancient, or even cosmogonic, origin. In one way, Taoism was eventually uplifted into the realms of philosophy and, in another, it degenerated into a system of superstitious belief. It is, however, often forgotten that, as David Talbott tells us, the Tao itself was originally known as "the Unmoved Mover, the god One who goes or 'moves' while yet remaining in one place."⁶ Also known as the "light of heaven" and "the heart of heaven," Talbott identified Tao as "the central sun."⁷ Where we differ slightly from him is in our assumption that Tao was the circumstellar disk *surrounding* proto-Saturn rather than the central Saturnian sun itself.⁸

THE NEBULAR CLOUD

Intimations of the nebulous nature of the cloud surrounding proto-Saturn comes from its description as fog, foam, fluffy cotton,⁹ and even slime.¹⁰ In the Creation myth of the Yuma, this same entity is spoken of as mist and foam.¹¹ In a myth from Maiana, Gilbert Islands, the same entity is described as Na Arean who "sat alone" in space "as a cloud that floats in nothingness."¹² The Voguls and Ostiaks, as A. Sauvageot informs us, retain a myth of origins in which "the creation is not conceived to be the very beginning of the universe." These people were of the belief that "a limitless stretch of water, sometimes with overlying fog and mist" preceded the Creation.¹³ The name Viracocha, borne by one of the most important

¹ Ovid, *Fasti* I:103.

² Joannes Laurentius Lydus, *De Mensibus* 4:2. (NOTE: For more on Janus as Saturn, see D. Cardona, *op. cit.*, pp. 165, 167-170, 172-173, 178, 239, 252, 263, 264, 279, 306-307, 357, 449. For more on Chaos see *ibid.*, pp. 142, 172, 261-263, 267-268, 271-280, 304, 306, 309, 311, 317, 319, 341, 432-433, 457, 490.

³ See here D. Cardona, *op. cit.*, pp. 263-264.

⁴ F. S. Dobbins, *Error's Chains: How Forged and Broken* (N. Y., 1884), p. 419.

⁵ Ou-I-Tai, "Chinese Mythology," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 379.

⁶ D. N. Talbott, *The Saturn Myth* (N. Y., 1980), p. 56.

⁷ *Ibid.*, pp. 56-57.

⁸ For more on this, see D. Cardona, *op. cit.*, pp. 263-264, 271, 438, 457.

⁹ *Ibid.*, p. 264.

¹⁰ *Ibid.*, p. 266.

¹¹ R. Erdoes & A. Ortiz, *American Indian Myths and Legends* (N. Y., 1984), p. 77.

¹² C. Sagan, *Cosmos* (N. Y., 1983), p. 257.

¹³ A. Sauvageot, "Finland-Ugria: Magic Animals," *Larousse World Mythology* (London, 1972), p. 424.

deities of the Incas, translates as “Foam of the Sea.”¹ Known in full as Kon Tiki Viracocha, this deity was believed to have lived “in the high heavens,”² and to have been “a god-creator,”³ attributes which identify him as a Saturnian deity.⁴

The “limitless stretch of water” of the Voguls and Ostiaks, as well as Kon Tiki Viracocha’s “foam of the sea,” bring us to the celestial watery substance which the mythologies of various races connected with the original Chaos.

THE WATERS OF CHAOS.

As J. Viaud informs us, the Egyptian Chaos was styled Nu (or Nun).⁵ But, as we pointed out in our previous volume,⁶ Nu more properly refers to “the primordial ocean” in which “the germs” of all things to come lay dormant before Creation.⁷ That this primordial ocean, inter alia known as the “father of the gods,”⁸ was celestial in origin is evidenced by it being referred to as “the watery abyss of the sky.”⁹ Nicolas Grimal was naïve when he stated that “the original archetype” of Nu “was supplied by the annual flooding of the Nile.”¹⁰ It seems that he was ignorant of the fact that the motif of cosmic water was well nigh universal.

The Egyptian Nu is equivalent to the Mesopotamian Apsu,¹¹ which also stood for the primordial ocean.¹² Apsu, also rendered Abzu, has been thought to be the origin of the Greek *abyssos*—Latin *abyssus*—from which the English word “abyss” is derived.¹³ The mythological abyss is also often termed “the deep.”¹⁴ This is the same “deep” we encounter in English translations of the Book of *Genesis* where it is said that “darkness was on the face of the deep.”¹⁵ In Hebrew, the word translated as “deep” is *tethom* which properly means “a surging mass of water.”¹⁶ The word is derived from *hum* (*huwm, hoom*), among the meanings of which is “to agitate.”¹⁷

¹ P. Tierney, *The Highest Altar* (N. Y., 1989), p. 154.

² R. Van Over, *Sun Songs: Creation Myths from Around the World* (N. Y., 1980), p. 114.

³ J-C Valla, *The Civilization of the Incas* (Geneva, 1978), p. 66.

⁴ For more on Kon Tiki Viracocha, see D. Cardona, *op. cit.*, pp. 278-279, 357.

⁵ J. Viaud, “Egyptian Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 11.

⁶ D. Cardona, *op. cit.*, p. 267.

⁷ J. Viaud, *loc. cit.*

⁸ *Ibid.*

⁹ E. A. W. Budge, *The Egyptian Book of the Dead* (N. Y., 1895/1967), p. 251.

¹⁰ N. Grimal, *A History of Ancient Egypt* (Oxford, 1992), p. 41.

¹¹ W. F. Albright, “The Mouth of the Rivers,” *The American Journal of Semitic Languages and Literature*, Vol. XXXV, No. 4 (July 1919), p. 167.

¹² A. Heidel, *The Babylonian Genesis* (Chicago, 1942), p. 10; see also M. Vieyra, “Empires of the Ancient Near East: The Hymns of Creation,” *Larousse World Mythology* (London, 1972), p. 65.

¹³ G. Michanowsky, *The Once and Future Star* (N. Y., 1977), p. 49.

¹⁴ *Ibid.*

¹⁵ *Genesis I:2.*

¹⁶ J. Strong, *Hebrew and Chaldee Dictionary* (Madison, N. J., 1890), p. 123.

¹⁷ *Ibid.*, p. 32; see also D. Cardona, *loc. cit.*

Among the Babylonians, Ea, as Shar Apsi, was the “King of the Watery Deep.”¹ Somewhat like Grimal, Morris Jastrow understood this as referring to “the sweet waters flowing under the earth which feed the streams, and through streams and canals irrigate the fields.”² But that Ea was actually a Saturnian deity need not be repeated, and this, alone, is enough to locate the Apsu in the sky.³

Heinrich Zimmer touched upon the same topic as it applies to Hinduism:

“From the period of the early Vedas down to the Hinduism of the present, water has been regarded in India as a tangible manifestation of the divine essence. ‘In the beginning, everything was like a sea without a light,’ declared an ancient hymn; and to this day, one of the most common and simple objects of worship in the daily ritual is a jar or pitcher filled with water, representing the presence of the divinity and serving in the place of a sacred image. The water is regarded, for the period of the worship, as a residence or seat (*pitha*) of the god.”⁴

A different Hindu myth also sets the stage for “the beginning” by presenting the now familiar situation in which there was only water in a starless night. This was the interval between dissolution and Creation. In this “infinite ocean” all the seeds of Creation rested in “a dormant state of undifferentiation.” Floating on this ocean was the god known as Vishnu, who was described as “the substance of his own essence.” This very Vishnu appears in “the form of a luminous giant” who is “recumbent on the liquid element, radiant with the steady glow of his blessed energy.”⁵ The identification of Vishnu as the god of the planet Saturn has already been presented in our previous volume.⁶

The Yakima of North America also believe that, prior to Creation, their creator was the solitary denizen of heaven and that all there was besides him was water:

“In the beginning of the world, all was water. Whee-me-me-ow-ah, the Great Chief Above, lived up in the sky all alone.”⁷

This is paralleled by what the African Boshongo tribe of the Bantu tell:

“In the beginning, in the dark, there was nothing but water. And Bumba [the creator] was alone.”⁸

¹ D. A. Mackenzie, *Myths of Babylonia and Assyria*, republished as *Mythology of the Babylonian People* (London, 1915/1996), pp. 28-29.

² *Ibid.*, p. 29, in reference to M. Jastrow, *Religion of Babylonia and Assyria*, p. 88.

³ For more on Apsu see D. Cardona, *op. cit.*, pp. 266-267, 269, 449.

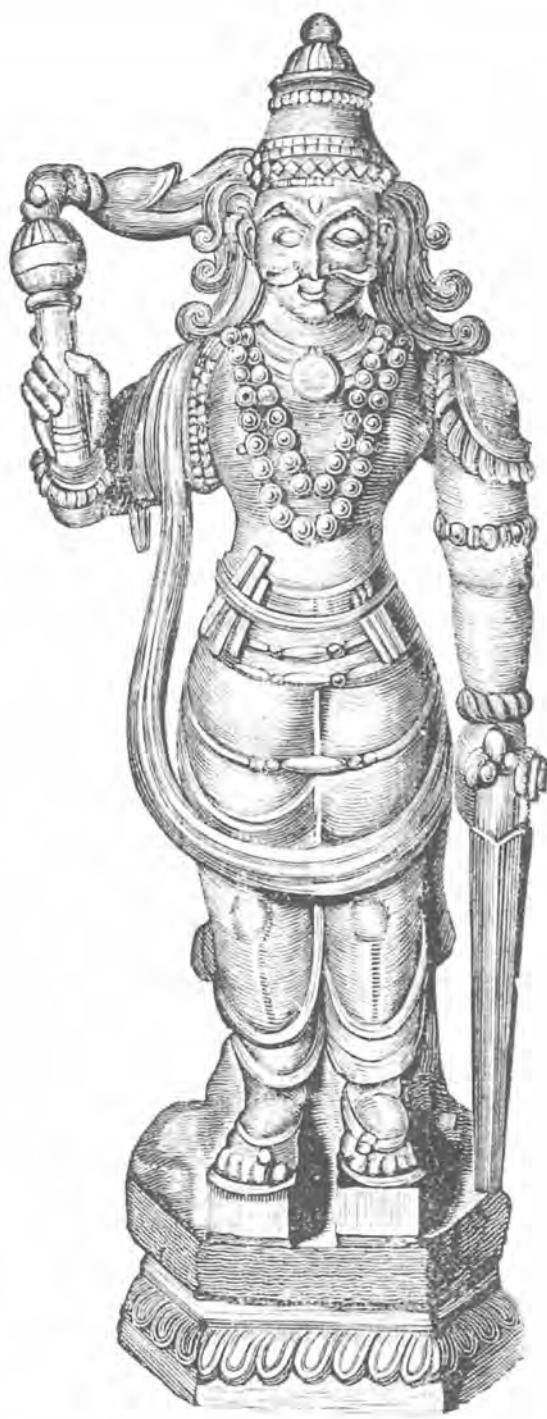
⁴ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 34. (NOTE: The ancient hymn cited in this quote is from *Rig Veda*, X: 129: 3. See also, *ibid.*, X: 121:8; *Satapatha Brahmana*, XI: 1: 6: 1.)

⁵ *Ibid.*, p. 128.

⁶ D. Cardona, *op. cit.*, pp. 233, 236, 246, 310, 440, 449, 451.

⁷ R. Erdoes & A. Ortiz, *op. cit.*, p. 117.

⁸ D. A. Leeming, *The World of Myth* (N. Y., 1990), p. 39.



Vishnu—who was described as having floated on the cosmic sea.

In fact, two of the epithets of the Creator among West African tribes have been translated as “Great Ocean Whose Headdress is the Horizon” and “Great Pool Contemporary of Everything.” The Yoruba of what used to be Nigeria are also of the belief that “in the beginning the world was all marshy and watery.”¹ In Japan, the same entity was spoken of as “the primeval oily mass.”² “The records,” Moe Mandelkehr noted, “clearly denote a sea, ocean, river or stream that was conceived as cosmic, heavenly, or celestial.”³ As he continues:

“The appearance of the celestial waters, in most cultures, goes back to very ancient times and is associated with the process of creation. Gaster and Brinton have recognised and discuss the ‘primality’ of water, in that in essentially all cultures there is a tradition of water existing before anything else. Clark also recognises the commonality of myths, that before the beginnings of all things was the Primordial Abyss of Waters, stretching endlessly in all directions...Early writers in the Middle East refer to the all-embracing great cosmic sea, with stories of creation including the celestial waters.”⁴

Unfortunately, Mandelkehr confused various unrelated myths concerning celestial rivers, lumping them erroneously into a single motif when, in fact, many of the sources he cited refer to different chronological events. Mandelkehr was influenced by these unrelated river motifs in his attempt to interpret them as a ring that had formed around Earth due to its encounter with a massive meteoroid stream at 2300 B.C. Leaving celestial rivers aside, he should have paid greater attention to what he himself had unearthed concerning the cosmic ocean of creation—namely, that this water was believed to have existed before anything else. What this means is that, as far as mankind was concerned, it had always been there, which is the reason why these cosmic waters were one of three entities which were believed not to have been created.⁵ (Of rings around the world we will have much to offer in a later section of this very work.)

The pre-existence of the watery deep is not, however, restricted to the ancient Near East. Nor is it unique to the Old World. The Maya, too, retained a tradition of a primordial entity known as “black hole, black water” which is believed to “have existed at the beginning of creation.”⁶ As the Amerind tribe of the Crow phrased it: “How water came to be, nobody knows.”⁷ So, likewise, among the Polynesians who believed that “in the beginning there existed only the primordial waters, plunged in cosmic darkness.”⁸

¹ G. Parrinder, *African Mythology* (London, 1967), p. 20.

² J. Piggott, *Japanese Mythology* (London, 1969), p. 13.

³ M. Mandelkehr, “The Ring About the Earth at 2300 BC,” *Chronology & Catastrophism Review* (2001:2), p. 9.

⁴ *Ibid.*, with references to T. H. Gaster, *Myth, Legend and Custom in the Old Testament*, Vol. 2 (Harper, 1969), pp. 3, 4; D. G. Brinton, *Myths of the Americas* (Steiner, 1976), pp. 128, 129, 210-213; A. R. Johnson, *Sacral Kingship in Ancient Israel* (University of Wales, 1955), p. 9.

⁵ For further on this topic see D. Cardona, *op. cit.*, pp. 268-270.

⁶ M. D. Coe, *Breaking the Maya Code* (N. Y., 1992), p. 255.

⁷ R. Erdoes & A. Ortiz, *op. cit.*, p. 88.

⁸ M. Eliade, *Patterns in Comparative Mythology* (London, 1996), p. 410.

Some Gnostics were even of the belief that the waters preceded the darkness, but that prior to the darkness there was absolutely nothing.¹ Others of their faith claimed that God “existed before the watery substance appeared out of the Darkness.”² The Gnostics, however, were composed of various sects who not only dissented from one another but also, more vehemently, with the other Christians of their time. In the end, their endless debates on what had been and had not been led to the most illogical and contradictory beliefs as delineated in the Gnostic system of Basilides. According to this system, originally there was simply and absolutely nothing. There was not only no substance but also no nonsubstance. There was not even God but, rather, a “nonexistent God.” This nonexistent God was “without intelligence, without sense, without will, without choice, without passion, without desire” to fashion the cosmos. But he fashioned it nonetheless.³

THE WHIRL OF CREATION

The Yuma myth of Creation states that:

“This is how it all began. There was only water...Then out of the waters rose a mist...Still there was no sun, no moon, no stars—just darkness. But deep down in the waters lived Kokomaht [All-Father], the Creator. He was bodiless, nameless, breathless, motionless...”⁴

The “waters,” however, “stirred and rushed and thundered,” producing spray and foam.⁵ This stirring and rushing of the waters provide us with a hint of their rotation. This was also indicated above when we noted the agitation of the Hebrew *tehom*. More explicit was Lao-tzu’s description of Tao: “It stands alone and does not change,” he wrote, “goes round and does not weary.”⁶ As expressed in our previous volume,⁷ it was this rotation, often expressed as a whirling motion, that convinced our ancients that the entity was composed of water, since the closest thing they could compare it to would have been a watery whirlpool or eddy along the shores of lakes and rivers. In view of the nature of plasma, which manifests itself at present in polar auroral displays, it is not inconceivable that, as Roger Ashton had earlier indicated,⁸ a similar shimmering effect would have superimposed itself on the rotating nebulous cloud.

¹ W. Barnstone, *op. cit.*, p. 127.

² *Ibid.*, p. 570.

³ *Ibid.* pp. 629-630.

⁴ R. Erdoes & A. Ortiz, *op. cit.*, p. 77. (NOTE: The twins included in this myth, mention of which has been excised here, will be discussed in a later volume of this series.)

⁵ *Ibid.*

⁶ As quoted by C. Sagan, *op. cit.*, p. 245.

⁷ D. Cardona, *op. cit.*, pp. 270-273.

⁸ R. Ashton, “The Age of Purple Darkness,” *AEON* V:3 (December 1998), p. 98.

PLANETARS

Circumstellar disks, placental or otherwise, form around stars. Until recently, such disks were difficult to detect. But, as Antonio Del Popolo could inform us by 2002, their detection had by then become “relatively easy.”¹

“Not only are they extremely large—a typical disk extends to an order of 1000 AU from the star—but the surface area of the small particles which make up the disk is many orders of magnitude larger than that of a planet. They emit and reflect light very well, and can be seen to relatively large distances from the central star with modern telescopes...They are remarkably common throughout our Galaxy...They are particularly evident due to their strong emission of infrared wavelengths...”²

Extra-solar planets have also now been discovered in *quantum sufficit*.³ At last count—October 2006—the number of these planets had risen to about two hundred.⁴ Most of these planets, all of them of multi Jovian masses, are detected, rather than observed. At the end of 2001, however, one of these extrasolar planets orbiting a star was actually photographed.⁵ Not all of these exoplanets, as they are now termed, are, however, members of star systems. A few of them are actually free-floaters, moving through the reaches of space without a chaperoning star. In the year 2000, a Spanish group of astronomers, led by Maria Zapatero-Osorio, reported eighteen such unattached objects in the constellation Sigma Orionis.⁶ These free-floating objects, however, were somewhat more massive than accepted planetary masses, but somewhat less massive than the previously known masses of brown dwarf stars. Thus, as Robert Naeye reported, “few [astronomers] agreed with calling these objects ‘planets’.”⁷ The problem did not merely involve nomenclature—that is, what to call them—but, rather, what to class them as. Some settled on the acronym PMOs, short for “planetary-mass objects,” others suggested the term “planetars,”⁸ which is a contraction of “planets” and “stars.” As Naeye reported:

“According to the standard theories of star formation used just a few years ago [that is, prior to 2003], solitary objects with the masses of a few Jupiters should not ex-

¹ A. Del Popolo, “Extra-Solar Planets, Detection and Theoretical Problems,” *Fifty Years After Worlds in Collision by Velikovsky: Classical and New Scenarios on the Evolution of the Solar System* (Bergamo, 2002), pp. 165-166.

² *Ibid.*

³ *Ibid.*, pp. 160, 161, 325-329, 332-337, 350, 415, 469-471, 476, 485.

⁴ G. W. Marcy, “The New Search for Distant Planets,” *Astronomy* (October 2006), pp. 31, 32; M. Turnbull, “Where is Life Hiding?” in *ibid.*, p. 62.

⁵ E. Samuel, “First Image of Extrasolar ‘Planet’ Captured,” in *ibid.* (January 8, 2002), p. 1.

⁶ R. Naeye, “Lonely Planets?” *Astronomy* (June 2003), p. 38.

⁷ *Ibid.*

⁸ *Ibid.*, pp. 38, 39.

ist...objects less massive than perhaps a dozen Jupiters were not expected to form by the standard mechanism of star formation.”¹

It was, therefore, somewhat disconcerting when two of these objects were discovered with masses of only “about six Jupiters.”² This makes this class of objects “even lower in mass than some of the extra-solar planets that have been found orbiting stars.” And this, as Ray Jayawardhana points out, “blurs the lines between planets and brown dwarfs.”³ Alan Boss therefore decided to stick by the policy that, regardless of whether an object was free-floating or orbiting a star, it should be considered a brown dwarf if it is between 13 and 75 Jupiter-masses. Anything below that limit should be termed a sub-brown dwarf.⁴

However, as Eduardo Martin noted, while these objects commence their stellar careers at relatively high temperatures, they eventually cool below -280°F. Of great importance to us, he then added that: “In their old age, they [will] look very much like Jupiter.”⁵

This would then explain why Jupiter presently radiates more energy than it receives from the Sun. Not only that, most of this energy is in the radio and infrared spectrums. As models based on thermodynamic calculations indicated, Jupiter’s energy is simply due to what it has retained from its former career as a sub-brown dwarf.⁶ It has even been suggested that Jupiter’s heat could either come, or is left over, from nuclear reaction, as it supposedly does in the Sun itself.⁷

This left over energy, however, is not restricted to just Jupiter. Saturn, too, is known to radiate more heat than it receives from the Sun.⁸ This, in fact, has led Martin to state that: “In this sense, isolated PMOs give us a golden opportunity to see what Jupiter and Saturn were like in their youths.”⁹

If sub-brown dwarfs cool to become giant gaseous planets like Jupiter and Saturn, they could then be correctly referred to as proto-planets. Thus, our proposal that Saturn had once been a sub-brown dwarf, and our allusion to it as proto-Saturn, is not as radical as it might have once appeared.

Planets large and small, at least in their formative periods, were also once believed to be surrounded by disks. These were believed to be the remains of the nebulous cloud out of which they had formed—which is why the term “placental cloud” was coined.¹⁰ To date, however, no such disks around planets have been discovered. They have, however, revealed themselves around brown dwarfs. As Govert Schilling reported:

¹ *Ibid.*, p. 39.

² *Ibid.*

³ *Ibid.*, p. 41.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*, p. 38.

⁷ *New Scientist* (January 5, 2002), p. 11.

⁸ D. Cardona, *op. cit.*, pp. 154 ff.

⁹ R. Naeye, *op. cit.*, p. 41

¹⁰ L. Barnett, *The World We Live In* (N. Y., 1955), pp. 5, 8-9.

"Using the 3.5-meter New Technology Telescope of the European Southern Observatory in La Silla, Chile, [Charles] Lada and his colleagues studied the Orion Nebula, an active star-forming region some 1200 light years from Earth.

"They found more than a hundred faint brown dwarfs floating around the nebula and 60 per cent of them turned out to emit excessive amounts of infrared radiation, indicating that they are surrounded by disks of warm dust.

"Some of these dusty disks had been photographed a couple of years ago [in 1999] by the Hubble Space Telescope. But Hubble could not see the obscured central objects and astronomers assumed that they were normal young stars.

"But infrared radiation is not absorbed by dust, so the central objects are visible in the new observations and many of them turn out to be low-mass brown dwarfs, according to August Muench of the University of Florida."¹

Low-mass brown dwarfs are sub-brown dwarfs or planetars. Thus, our claim, as deduced from the mytho-historical record, that the sub-brown dwarf star that was proto-Saturn was surrounded by a circumstellar disk is right on the mark.

¹ G. Schilling, "Chill-Out Zone," *NewScientist.com* (June 8, 2001), p. 1.

Chapter 12

Lord of the Lingam

THE AXIS MUNDI

The other item discussed in our previous volume that has yet received but slight mention in the present one is the jet-like plasma that stretched between proto-Saturn and Earth. From Earth, this jet would have appeared as a singular ray of light emanating from proto-Saturn or, as some had it, from the primordial ocean surrounding the proto-Saturnian orb. Thus, in a hymn of praise to Ra as contained in the *Papyrus of Ani*, the primordial water known as Nu is said to have flooded the deity “with his rays of light.”¹ In Japan, this ray was visualized as “the Heaven-uniting pillar, on which the heavens rested as on a prop.”² The Christian Sibyllines referred to it as a “pillar of glory.”³ In Egypt, this heaven-sustaining column was known as *khu* and/or *khut*, which word utilizes a hieroglyphic character that translates as “vertical streamers of light ascending the world axis.”⁴

The message is clear enough: Although the direction of the light was interpreted differently by different peoples—that is, ascending or descending—what the ancients purport to have seen was exactly what Hippolytus described as “the downward flow of light from above” and as “a ray coming from above.”⁵ Even Plato had reason to describe it as “a straight light like a pillar” which has been understood as “stretching along the axis of the cosmos,”⁶ while others have presented it as “a cylinder of aetherial fire surrounding the axis.”⁷

There were also some who thought of this pillar of light as the god’s single leg, or as the god acting in solemnity while standing on one leg.⁸ This was even true of the Hindu Manu, considered by some as the prototype of the Biblical Noah, who stood on one foot performing awesome austerities for 10,000 years.⁹ Osiris/Saturn, on the other hand, was lauded as having occupied a position above the leg of heaven, which leg was described as a “leg of fire.”¹⁰

This brings us face to face with one of the most controversial deities from Indic lore—the Lord Shiva—who received but passing mention in our previous volume.¹¹

¹ E. A. W. Budge, *The Egyptian Book of the Dead* (N. Y., 1895/1967), p. 250.

² F. S. Dobbins, *Error’s Chains: How Forged and Broken* (N. Y., 1883), p. 311.

³ W. Barnstone, *The Other Bible* (N. Y., 1984), pp. 559, 673.

⁴ D. N. Talbott, *The Saturn Myth* (N. Y., 1980), p. 177.

⁵ W. Barnstone, *op. cit.*, p. 655.

⁶ A. B. Cook, *Zeus: A Study in Ancient Religion*, Vol. II (N. Y., 1965), p. 44.

⁷ *Ibid.*

⁸ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 439-441.

⁹ A de Grazia, *Homo Schizo II* (Princeton, N. J., 1983), p. 142.

¹⁰ E. A. W. Budge, *The Egyptian Book of the Dead* (London, 1901), p. 370; G. Massey, *Ancient Egypt* (N. Y., 1970), p. 311.

¹¹ D. Cardona, *op. cit.*, pp. 31, 147, 233.

SHIVA

Francis Wilford reported that “many of the Hindus acknowledge that S[h]iva, or the god Jupiter, shines in that planet.”¹ This, however, is as good as his other assertion that the Sun “is the peculiar station of Vishnu.”² It is doubtful that modern Hindus believe that Shiva ever personified the planet Jupiter. But even if some of them do so believe, their belief would not necessarily reflect that of their ancient forefathers. Note, for instance, the modern Hindu belief that Surya personifies the Sun when, as already indicated, Surya’s characteristics are anything but Sun-like. Likewise, in Ptolemaic Egypt, Osiris was considered the god of the planet Venus,³ Ra the god of the planet Mars,⁴ and Set the god of the planet Mercury,⁵ but we find nothing to substantiate these late beliefs in the literature of the more ancient dynasties. None of the above holds up under the scrutiny of comparative mythology. And it is in the earliest antiquity that we must seek the answer to Shiva’s identity.

Over a century and a half after Wilford, Immanuel Velikovsky also identified Shiva as having represented the planet Jupiter,⁶ an identification that has been repeated blindly by various of his followers.⁷ Unfortunately, Velikovsky’s identifications of the Indic deities as various planets were often inadequately documented. In some cases, he offered no supporting evidence whatsoever. That the identification of Shiva as Jupiter is erroneous, I have already documented elsewhere,⁸ and all I will add here is that there is nothing in the mythology of Shiva which compares favorably with that of the Jovian deities of other nations.

Ev Cochrane, on the other hand, has indicated that Shiva is to be understood as a manifestation of the planet Mars.⁹ To a certain extent this identity is subject to Shiva’s assimilation to the *earlier* Rudra¹⁰ at a *later* time.¹¹ What comparative mythology however indicates is that Shiva, like so many other ancient deities, traces to Saturn, an identification that had been offered as early as 1875.¹² The connection was also made by Oldfield Howie.¹³

¹ F. Wilford, “On Egypt and Other Countries Adjacent to the Cali River or Nile of Ethiopia from the Ancient Books of the Hindus,” *Asiatick Researches*, Vol. III (1979), p. 382.

² *Ibid.*

³ E. A. W. Budge, *The Gods of the Egyptians*, Vol. II (N. Y., 1904/1969), p. 303.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), pp. 86, 182, 268.

⁷ See, for instance, A. de Grazia, *Chaos and Creation* (Princeton, 1981), p. 198; P. Clapham, in the “Forum” section of *Chronology & Catastrophism Review* (1996:1), p. 38.

⁸ D. Cardona, “Child of Saturn,” Part II, *KRONOS* VII:2 (Winter 1982), pp. 29-33; *idem*, “Vishnu Born of Shiva,” *KRONOS* VII:3 (Spring 1982), pp. 15-18.

⁹ E. Cochrane on the KRONIA Internet discussion group sponsored by KRONIA Communications, December 8, 1996.

¹⁰ *Linga Purana* I:54:62-64.

¹¹ E. Cochrane, “Martian Meteorites in Ancient Myth and Modern Science,” *AEON* IV:2 (August 1995), p. 70; *idem*, “Thundergods and Thunderbolts,” *AEON* VI:1 (February 2001), p. 115.

¹² H. M. Westropp, *Ancient Symbol Worship: Influence of the Phallic Idea in the Religions of Antiquity* (N. Y., 1875), p. 42.

¹³ M. O. Howie, *The Encircled Serpent* (N. Y., 1955), p. 65.



Shiva

Strange as it may seem, Heinrich Zimmer also noted a connection between Shiva and Santa Claus,¹ which, in view of our own previous connection of Santa Claus with proto-Saturn,² does not surprise us at all. These assertions should not be discarded because they happen to come from mythologists rather than mythology itself. In Alexandrian times, the Greeks

¹ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 186.

² D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 241-242.

equated Shiva with their own Dionysos¹ whose Saturnian identity has already been indicated. But what of Hindu lore itself?

In the *Linga Purana*, Shiva is alluded to as “the Purusha.”² In Sanskrit, *Purusha* translates as “Supreme Being,” with the connotation of “first” or “primary.”³ This accords with the belief of other nations in that the Saturnian deity was the first and, for a time, the only, god visible in the primordial sky. It also accords well with the hoary practice of placing the Saturnian deity at the head of all ancient pantheons.

Shiva was considered “the overlord of the waters” and “glorified as such.”⁴ But “the waters,” it was also said, constitute the abode of Vishnu,⁵ whom we have earlier seen floating on these very waters. The god known as Hari-Hara, however, combines Shiva and Vishnu into one and the same deity.⁶ This is further complimented by the fact that both Shiva and Vishnu share the same epithet of Sarva.⁷ The *Linga Purana* also equates Shiva with Vishnu.⁸ Actually, as Heinrich Zimmer informs us:

“...in the earlier and classic *Puranas*⁹ Shiva is no more than a function or mask assumed by Vishnu whenever the moment approaches for the reabsorption of the universe. Only in a later stratification of Puranic myth¹⁰ do we find Shiva coming to the fore to enact independently and alone all three of the great world roles of creation, preservation, and destruction.”¹¹

The same passage in the *Linga Purana* which links Shiva to Rudra also equates Shiva with Brahma,¹² whose identity as Saturn has already been documented.¹³ Now it is true that the *Puranas* are of relatively recent date, with some of them being as tardy as the 10th century A.D. Not only that, but the *Linga Purana* itself was abridged by Krishna Dvaiapayana. As the translators of the 1973 edition of this work inform us:

“The abridgement was a natural course, for the old contents ceased to appeal to later generations. At the same [time], fresh material was available which the new compilers

¹ H. Zimmer, *loc. cit.*; H. de Wilman-Grabowska, “Brahmanic Mythology,” *Asiatic Mythology* (London, 1972), p. 120.

² *Linga Purana* I:53:53.

³ V. S. Apte, *The Practical Sanskrit-English Dictionary* (Delhi, 1965), p. 626.

⁴ *Linga Purana* I:54:34-38.

⁵ *Ibid.*

⁶ C. H. Marchal, “The Mythology of Indo-China and Java,” *Asiatic Mythology* (London, 1972), p. 211.

⁷ V. S. Apte, *op. cit.*, p. 973.

⁸ *Linga Purana*, *loc. cit.*

⁹ That is the *Vishnu Purana*, *Matsya Purana*, *Brahma Purana*, and others.

¹⁰ As in the *Markandeya Purana* and the *Kurma Purana*.

¹¹ H. Zimmer, *op. cit.*, p. 128.

¹² *Ibid.*

¹³ D. Cardona, *op. cit.*, pp. 131, 135, 196, 216, 232, 233, 284, 309, 439, 446.

inserted in the old corpus. The process continued till the beginning of the fifth century A.D. when the bulk of this Purana was settled to its present form."¹

It is also no secret that the *Puranas* were compiled "for the purpose of promoting some special, locally prevalent form of Brahmanical belief."² While most of them exhibit a certain Vaishnava tendency—i.e., a tendency to elevate Vishnu above the other two members of the Trimurti—it is quite obvious that the *Linga Purana* is strictly Saiva: From beginning to end it lauds the *niskala* and *sakala* (attributes and characteristics) of the Lord Shiva.

Be all that as it may, the term *purana* itself signifies "old" and it was originally applied "to prehistoric, especially cosmogonic, legends."³ In other words, regardless of how late these "legends" were put into writing, they still derive from great antiquity.

It is not hidden from anyone that Brahma, Vishnu, and Shiva form a trinity, with Brahma as the Creator, Vishnu as the Preserver, and Shiva as the Destroyer of the so-called "world." It was well understood by the ancients that these three divinities, collectively known as the Trimurti, were in reality three gods in one.⁴

Additionally, just as the Greek Kronos, when rendered "Chronos," means "Time," so does Shiva's title of Kala.⁵ Moreover, Kala was itself a name of the planet Saturn.⁶ Thus when Shiva is designated as Kala, he is unambiguously identified as Saturn.

Soma is one more name of Shiva, but also an epithet of Yama.⁷ More than that, Shiva himself is also known as Yama-antakah.⁸ That Yama was a name of Saturn is well known.⁹

A common epithet of Shiva is Sthanu, which has the meaning of "pillar" or "post,"¹⁰ which fits well with the heaven-sustaining pillar and/or post of our present topic. Although this is the meaning of Sthanu most often stressed by Indologists, *sthānu* also translates as "firm, fixed, steady, stable, immovable, and motionless,"¹¹ which conforms with the immobility of the proto-Saturnian sun.

Another name of Shiva is Achala which, as a noun, translates as "seven,"¹² the sacred number mostly associated with Saturn.¹³ But, as an adjective, *achala* again means "steady, immovable, motionless, fixed, and permanent."¹⁴ Sthirah, derived from *sthira*, also means

¹ *The Linga Purana* as translated by a Board of Scholars (Delhi, 1973), p. xvii.

² H. J. Eggeling & J. Allan, "Sanskrit Language and Literature," *Encyclopaedia Britannica* (1959 edition), Vol. 19, p. 963.

³ *Ibid.*

⁴ J. Herbert, "Hindu Mythology," in "India: The Eternal Cycle," *Larousse World Mythology* (London, 1972), p. 211.

⁵ H. de Wilman-Grabowska, *loc. cit.*; H. Zimmer, *op. cit.*, p. 167.

⁶ V. S. Apte, *op. cit.*, p. 353.

⁷ *Ibid.*, p. 1000.

⁸ *Ibid.*, pp. 353, 781, 806, 1009.

⁹ D. Cardona, *op. cit.*, pp. 61, 233, 236, 270, 309, 440.

¹⁰ V. S. Apte, *op. cit.*, p. 1007.

¹¹ *Ibid.*

¹² *Ibid.*, p. 20.

¹³ A topic that is also reserved for a future volume in this series.

¹⁴ V. S. Apte, *loc. cit.*



The Trimurti—Brahma, Vishnu, and Shiva.

"fixed," and we find this epithet applied to both Shiva and Saturn.¹

Yet another epithet of Shiva is Dhruva,² and since Dhruva is also the name of the Pole Star,³ this designation obviously alludes to proto-Saturn's north celestial polar station. This is further strengthened by the fact that Saturn's avatar of Vishnu also bears the same epithet.⁴ This is unambiguously reflected in Shiva's additional epithet of Madhyastha, which is derived from the words *madhya*, meaning "middle" or "central," and *sthah*, meaning "place"⁵—thus "middle and/or central place."

Now while some of the above characteristics of Shiva—although by no means all—as well as others we will be presently presenting, might be shared by *other* planetary deities, the totality of them is enough to cast away any doubts concerning the *original* identity of the god as a personification of proto-Saturn.

¹ *Ibid.*, p. 1009.

² *Ibid.*, p. 351.

³ See here D. Cardona, *op. cit.*, pp. 232-233, 236, 246, 310, 434, 440, 451.

⁴ *Ibid.*

⁵ V. S. Apte, *op. cit.*, pp. 738, 739, 1007.

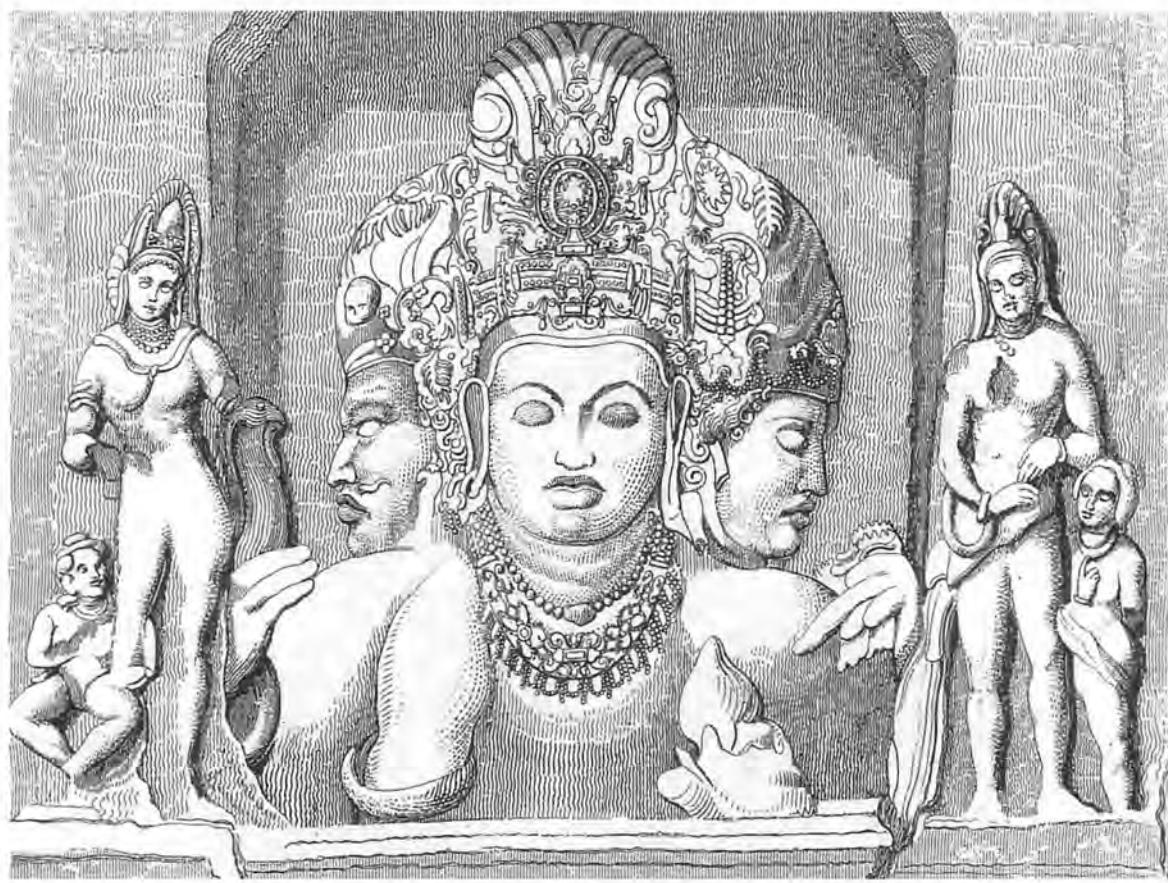


The Trimurti—Brahma, Vishnu, and Shiva, presented as three gods in one.

ONE THOUSAND AND EIGHT EPITHETS

Having exposed Shiva's identity as Saturn, it might appear to those in the know that we have been somewhat selective. This might seem to be so because, in later times, Shiva was burdened with a multitude of names—*one thousand and eight*, the *Linga Purana* claims.¹ This is an unwarranted boast since some of these names are duplicated while others are identical in meaning. The problem, here, is that not all of these names can be identified as Saturnian ones.

¹ *Linga Purana* I:65:54b-168.



The Trimurti—from the Temple of Elephanta.

Shiva's name #71, which is simply *Graha*, identifies the god as a planet. The *Shivatosini*, a commentary on the *Linga Purana* written in the 18th century by Ganesha Natu, however, claims that *Graha* here stands for *Vrishityavagrahakaroko bhaumah*, that is "Mars withholding rain."¹ It has, on the other hand, been admitted that the interpretations contained in the *Shivatosini* are often "far-fetched, forced or fancied."² But then, names #350 and #626, Visakha and Kumara, are aliases of Karttikeya whose identity as Mars is well enough recognized. Shiva, however, is even called Dhumaketu (name #629) which actually means "comet."

In view of all this, it might rightly be asked why Shiva's identity as Saturn should be given preference at the expense of Mars, and even other celestial bodies, with which he also seems to be associated. But, in view of the sectarian bias of the *Linga Purana*, it is obvious that Shiva was assimilated with just about every celestial body, *other than Venus and Jupiter*,

¹ Translators of the 1973 edition of *The Linga Purana* (Delhi, 1973), Part I, p. 264.

² *Ibid.*, p. vii.

in order to demonstrate his divine omni-form as, to be sure, Ganesha Natu himself claims.¹ Is this not, in fact, borne out by the *Linga Purana* itself in which Shiva is also called Sarvadevamaya (name #893 and #949), which means “identical with all Devas,” and Sarvalakshana (name #866), “one who has all characteristics”? In reality, rather than being the same as Karttikeya/Mars, Shiva was actually his father.² But then, again, how can we be sure that Shiva’s identity as Saturn does not stem from the same cause.

Preference for a Saturnian identification of Shiva originates in those epithets which, *without calling on Saturn itself or any other celestial body*, compare favorably with the universal characteristics of the mythological Saturnian sun. Among the “thousand and eight” names of Shiva, these epithets proliferate. This indicates that Shiva’s identity as Saturn predominates.³ In clarifying this very problem, Roger Ashton had recourse to a different, but just as valid, argument:

“In the instances of Kala, Raivata, Sthira, and Yama [which are all epithets of Shiva], no planet other than Saturn is mentioned. It could [therefore] be assumed that the original linkage is shown by this one class of clues rather than by several others. Given this, Shiva’s real link is to Saturn, while others are misleading.”⁴

This is especially apparent in the feast of Shani-Pradosh, celebrated by the Hindus when the thirteenth day of a lunar fortnight falls on a Saturday. As is well known, Saturday is named in honor of the Saturnian deity, the name being derived from the Saxon *Saterne’s Day* (or *Daeg*), through the Latin *Saturni Dies*. The day of Saturday was held sacred to Saturn among the peoples of various other nations, including the Jews, Arabs, Maltese, the Latins, and Indo-Chinese.⁵ And so, also, among the Hindus, whose name for Saturday is Shanivar, derived from Shani, which is probably the most common Sanskrit name of the planet Saturn. *Shanivar* thus translates as “Saturn’s Day.”⁶ Now on the night of Shani-Pradosh there occurs a worship of no other than Shiva. *Pradosh* means “night.” *Shani-Pradosh* thus translates as “Saturn’s Night.” It is not reasonable to assume that a deity honored in a festival called Saturn’s Night, occurring in the evening of Saturn’s Day, is not himself a personification of the same Saturn. Otherwise this would be akin to claiming that the Christian feast of Christmas is not held in honor of Christ. Besides which, Shani, the name of the planet Saturn, is yet one more epithet of Shiva.⁷

¹ *Ibid.*, p. 262.

² While this topic, too, is reserved for a future work, see here D. O’Flaherty, *Hindu Myths* (Harmondsworth, 1976), p. 354.

³ This will be demonstrated further elsewhere in this work, as well as in future ones, where various additional Saturnian attributes of Shiva will come to the fore.

⁴ R. Ashton, “The Genie of the Pivot,” *KRONOS* X:1 (Fall 1984), p. 18.

⁵ D. Cardona, *op. cit.*, p. 151.

⁶ See here the Hindi-English edition of Bhargava’s *Standard Illustrated Dictionary of the Hindi Language* (Varanasi, 1960), p. 1017; V. S. Apte, *op. cit.*, entry under “Shanivar.”

⁷ V. S. Apte, *op. cit.*, p. 907.

AJA EKAPAD

We can now return to the pillar of light that was *inter alia* visualized as the single leg of the deity. We have also already noted Shiva's epithet of Sthanu, which has the meaning of "pillar" or "post." Kilah, yet another name of Shiva, likewise means "pillar."¹ But Shiva was also designated as Ekapada, which means "lame."² As Aja Ekapad, however, he is the "one-footed" support of the sky.³ That this lameness was attributable to the Saturnian planetary god is evidenced in a myth in which Shani, that is the planet Saturn, was lamed by Parvati for having killed her son. And yet, in a different version of the myth, it was Shiva who molested Parvati's son.⁴

Besides his lameness, as an ascetic Shiva is also portrayed as standing on his right leg, with his left being held by a strap which he holds in his right arm.⁵ To this day, Shivaite and Sadhus still adopt this posture and hold it for long periods of time as a form of devotion to their god.⁶ It is doubtful that they know it, but in adopting this stance they are actually imitating the one-legged posture of the primordial Saturnian sun.

In order not to portray the deity in his deformity, Shiva is also sometimes depicted sitting with one leg tucked under or in front of him, with the other dangling straight below.⁷

The leg, or foot, that is the cosmic pillar, is also commemorated in the Hindu ritual involving the raising of the sacred stake known as the Yupa. As this stake is raised, the priest intones the words: "With thy crest thou hast touched the sky; with thy middle thou hast filled the air; *with thy foot* thou has steadied the earth."⁸

It is, however, the ancients' rendition of this pillar of light as the god's phallus that will retain our interest for the remainder of this chapter since, as we shall soon see, it will become of special importance in the unfolding of the events that brought the Ice Age to an end.

THE MAHA LINGA

As we have shown in our previous volume, "the downward flow of light from above,"⁹ was visualized by some as a cosmic phallus.¹⁰ In Egypt, Osiris was considered the phallus of the same Ra. We find this stated in a liturgical tract contained in the *Papyrus of Ani* which is presented in the form of questions and answers. "Who is this?" it is there asked. And the answer is given:

¹ *Ibid.*, p. 358.

² *Ibid.*, p. 313.

³ D. N. Talbott, *op. cit.*, p. 212.

⁴ V. Ions, *Indian Mythology* (London, 1967), pp. 100-101.

⁵ H. de Wilman Grabowska, *op. cit.*, p. 121.

⁶ *Ibid.*

⁷ *Ibid.*, p. 120.

⁸ *Satapatha Brahmana* III:7:1:14.

⁹ D. Cardona, *op. cit.*, pp. 446.

¹⁰ *Ibid.*, pp. 441-447.

"It is Osiris. Others, however, say that his name is Ra, and that the god who dwelleth in Amentet [that is, Osiris] is the phallus of Ra, wherewith he had union with himself."¹

At this point, the slight ambiguity in the above liturgy as to whether Osiris and Ra were one and the same deity, or whether one was considered merely a particular feature belonging to the other, should not surprise the reader. But besides being the phallus of Ra, Osiris was also believed to have boasted of his own. In fact, Osiris' member seems to have been so popular with the Egyptian population that the Greek biographer, Plutarch, could assert that the god "was everywhere represented with the phallus exposed."²

The deity known as Aai is presented as a phallus god,³ but, at the same time, Aai is also one of the forms of Ra.⁴ Similarly, Rehu is a god identified with the phallus of Osiris,⁵ but Rehu is also a form of Shu,⁶ whom we had also earlier presented as the heaven-sustaining deity.⁷

In Indic lore, it is Shiva who is mainly connected with the phallus, known there as the *linga* or *lingam*. Shiva is not, however, the only deity associated with the heavenly phallus. One of the meanings of the name Prajapati, the Creator, translates as the male organ of generation.⁸ That Prajapati is also to be equated with Saturn we have indicated in our previous volume.⁹ Among most mythologists, the *lingam* is usually represented as a symbol of fertility, as is apparent in the writings of Veronica Ions. In speaking of the Dravidians, the non-Aryan peoples of southern India and Ceylon, Ions presented them as an agricultural people who "worshipped gods connected in one way or another with fertility." Typical of this, according to her, was phallic worship at Harappa.¹⁰ Elsewhere she speaks of the "fertility-giving aspect of Shiva," whose "supreme creative power is celebrated in the worship of the *lingam* or phallus,"¹¹ which personal attribute "characterise[s] Shiva as a god of fertility."¹² De Wilman-Grabowska also presents Shiva as a "God of fecundity" being worshipped "in the shape of the *linga*."¹³ Mircea Eliade, on the other hand, was somewhat more inclusive when he stated that:

"It is very likely that among those who adore the *lingam* of Šiva, a great many see it only as an archetype of the generative organ; but there are others who look to it as a

¹ R. Van Over, *Sun Songs: Creation Myths from Around the World* (N. Y., 1980), p. 283.

² H. M. Westropp & C. S. Wake, *op. cit.*, p. 63.

³ E. A. W. Budge, *An Egyptian Hieroglyphic Dictionary*, Vol. I (N. Y., 1920/1978), p. 110.

⁴ *Ibid.*

⁵ *Ibid.*, p. 429.

⁶ *Ibid.*

⁷ D. Cardona, *op. cit.*, pp. 437-438, 443-444, 457.

⁸ V. S. Apte, *op. cit.*, p. 642.

⁹ D. Cardona, *op. cit.*, pp. 61, 196, 233, 310, 311, 446.

¹⁰ V. Ions, *op. cit.*, p. 13.

¹¹ *Ibid.*, p. 42.

¹² *Ibid.*, p. 43.

¹³ H. de Wilman-Grabowska, *op. cit.*, p. 130.

sign, an ‘image’ of the rhythmic creation and destruction of the universe which expresses itself in forms, and periodically returns to its primal, pre-formal unity, before being reborn.”¹

When Eliade asks which is the true meaning, he replies that “both are equally valuable.”² They may both be valuable for the study of religion, but, as will be made apparent in the very next chapter, it is the second interpretation, that of “rhythmic creation and destruction,” that accords with the cosmogonical account. Thus, for instance, like Shiva himself, his *lingam* was also called *dhruba*—“the fixed, or immovable”³—an obvious reference to proto-Saturn’s immobility and that of the jet-like axis emanating from it. It should not, however, be forgotten that Dhruba is the Sanskrit name for the North Star. This, then, explains why, among the Evenks, who belong to the Tungus group of Siberia, the name of the North Star translates as “the middle of the universe.”⁴ True enough, as the center of the northern sky, this name might be thought of as an appropriate one. But to another Tungus group, the North Star is known as “the pillar,”⁵ which is hardly descriptive of the star in question. As Edwin Krupp correctly surmised, this pillar “is the cosmic axis” that connects heaven to Earth.⁶ Like others before him, Krupp understood this axis as a metaphor, but that this axis was a *visible* phenomenon is evidenced by its oft repeated description as a pillar of light or a flaming column.

Zimmer, likewise, recognized that Shiva’s “fiery lingam is a form of the Axis Mundi” which can be equated “with the shaft of light” that penetrates Earth.⁷ Like Krupp, and so many others, he, too, misinterpreted this “shaft of light,” presenting it as “the Ray that extends from the Sun above.”⁸ He should have realized that the sun is anything but fixed or immovable, and that it radiates more than a single ray of light.

Ananda Coomaraswamy has also indicated that: “The axis of the universe is coincident also with the fiery S[h]iva-lingam.”⁹ Yet even here, the word “universe” is misleading since what was originally meant was proto-Saturn’s special “cosmos.”

There is one telling and oft-repeated myth concerning Shiva’s lingam which is presented in the form of a parable. This concerns the “night of Brahma when all beings were lost [some translate ‘confounded’] in silent immobility”¹⁰—an obvious reference to Brahma/Saturn’s immobile station during the age of darkness. In this “night” there lay Narayana, described as “being and non-being,” floating “on the formless waters.”¹¹ This Narayana, which name

¹ M. Eliade, *Patterns in Comparative Religion* (London, 1996), p. 7.

² *Ibid.*

³ H. Zimmer, *op. cit.*, p. 126.

⁴ E. C. Krupp, *Skywatchers, Shamans & Kings* (N. Y., 1997), p. 36.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ H. Zimmer, *op. cit.*, p. 128.

⁸ *Ibid.*

⁹ A. K. Coomaraswamy, *Elements of Buddhist Iconography* (New Delhi, 1972), pp. 65-66.

¹⁰ J. Herbert, *op. c it.*, p. 222.

¹¹ *Ibid.*

means “son of the waters,”¹ was an epithet of both Vishnu² and Brahma,³ both of whom we have already equated with Saturn.⁴

Brahma and Vishnu/Narayana are presented in this allegory as arguing about who of them was the real Creator when “a glorious shimmering *linga*...a flamboyant pillar with the brilliance of a hundred fires” appeared before them. This *linga* appeared to be “without beginning, without middle, without end, incomparable, indescribable.” In an attempt to discover the source of this pillar of a “thousand flames,” Vishnu plunged down to fathom its depths, while Brahma flew up to discover its top. It is said that Vishnu and Brahma spent “a thousand years” in their journey up and down without discovering either the *linga*’s top or bottom. After they both returned to the middle from where they both had commenced, they discovered Shiva in the place of the *linga*. The *linga* was obviously him.⁵

As a parable, this myth is meant to describe the indescribable, an attempt to illustrate the cosmic size of Shiva’s *lingam*. It is also meant to clarify the real identity of the Trimurti since Shiva is there said to have told Brahma and Vishnu that, in reality, *he is them* and that *both of them are he*. “For I,” Shiva is reported to have said, “supreme lord, undivided, I am three: Brahma, Vishnu and S[h]jiva; I create, I maintain, I destroy.”⁶

PHALLIC WORSHIP

Phallic worship was universal. Among some societies it has persisted until the present. It can be traced as far back as Neolithic times. As Marija Gimbutas demonstrated:

“Representations of phalli are found in all phases and cultural groups of Old Europe with a wider variety in Neolithic Greece and Yugoslavia, particularly the Adriatic seaboard. They were fashioned in all sizes from the miniature to the exaggerated. Their decoration and shape range from naturalistic to fantastic...”⁷

Phalli carved out of chalk, still considered as symbols of fertility, have been discovered at Stonehenge.

“Not only was Stonehenge itself a burial ground, but it stands within a landscape filled with memorials to the dead, principally the mounds of long and round barrows. Buried with the dead were aspects of their lives, and of life itself; carved phalluses,

¹ W. D. O’Flaherty, *op. cit.*, p. 349; *Linga Purana* I:54:34-38.

² *Ibid* & *ibid*.

³ As in the *Vishnu Purana*—see here, W. D. O’Flaherty, *op. cit.*, p. 186.

⁴ This despite the fact that in Puranic times Narayana was used as a name for the planet Mercury. *Linga Purana* I:60:3-5.

⁵ J. Herbert, *loc. cit.*

⁶ *Ibid.*; see also P. Masson-Oursel & L. Morin, “Indian Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 378; H. Zimmer, *op. cit.*, pp. 128-129.

⁷ M. Gimbutas, *The goddesses and Gods of Old Europe* (London, 1982), pp. 216-217.

which are found in many prehistoric contexts, including the Stonehenge region, were emblems of human fertility, and perhaps also fertility of the soil in which they were placed.”¹

Diodorus tells us that “speaking generally, not only the Egyptians, but also not a few other nations have consecrated that member [that is, the phallus] in their initiatory rites...” But even he sought to explain the phallus “as the cause of the production of living beings.”²

In 1875, still keeping to the creative energy symbolic in the phallus, Hodder Westropp wrote that:

“Evidence that this worship extensively prevailed will be found in many countries, both in ancient and modern times. It occurs in ancient Egypt, in India, in Syria, in Babylon, among the Assyrians, in Persia, Greece, Italy, Spain, Germany, Scandinavia, and among the Gauls....According to Ptolemy, the phallus was the object of religious worship among the Assyrians and also among the Persians. In Syria, Baal-Peor was represented with a phallus in his mouth, according to St. Jerome.”³

In ancient Rome, according to Augustine, “the sexual organ of man was consecrated in the temple of Liber.”⁴ And in the month of April, a Roman festival in honor of Venus took place in which a phallus was carried in procession in a cart.⁵

“Among the Teutons and Scandinavia, the god Fricco, corresponding to the Priapus of the Romans, was adored under the form of a phallus; a similar god under a similar symbol was adored in Spain, whose name was Hortanes.”⁶

In China, too, according to Westropp, offerings of stone phalli were still being presented in his day in what he calls a Buddhist temple in Peking.⁷ Also, in Japan, phalli are sold in shops to be purchased mostly by women who take them home and dress them up, much like dolls, to be kept in family shrines.⁸

Phallic worship was also practiced in the Americas, “particularly at Panuco,” in Mexico, as documented by one of the companions of Hernando Cortez, where phalli were preserved in temples and adored.⁹

“In other provinces, particularly Panuco, they worship the member of the body which is between a man’s legs: they have it in the mosque [i.e., temple] and also set it in the

¹ D. Souden, *Stonehenge Revealed* (N. Y., 1997), pp. 112-113.

² Eusebius Pamphili, *Evangelicae Praeparationis*, II:1:49d (emphasis added).

³ H. M. Westropp, “Phallic Worship,” in H. M. Westropp & C. S. Wake, *op. cit.*, p. 27.

⁴ *Ibid.*, p. 26.

⁵ *Ibid.*

⁶ *Ibid.*, p. 28.

⁷ *Ibid.*, p. 31.

⁸ General knowledge.

⁹ H. M. Westropp, *op. cit.*, p. 28.

square, together with figures in relief showing all the kinds of pleasure than can exist between man and woman and they have these pictures with legs raised in various ways.”¹

The same was true of Haiti, Peru, and Oceania:

“The inhabitants of Tlascala also paid worship to the sexual organ of a man and a woman. In Peru, several representations in clay of the phallus are met with. At Hayti [i.e., Haiti]...phalli have been discovered in different parts of the island, and are believed to be undoubtedly the manufacture of the original inhabitants of the island. In one of the Marianne islands of the Pacific Ocean, on festive occasions, a phallus, highly ornamented, called by the natives Tinas, is carried in procession.”²

In fact, the Polynesian obsession with the phallus was so prevalent that, until the 1850s, *Ure*, which means “Penis,” was a common personal name on Easter Island.³ In Peru, Incan stone phalli, some up to fifteen inches high, continue to be discovered at many mountaintop sanctuaries.⁴ But also, much farther north, phallic worship seems to have been prevalent among the mound builders of North America. One image discovered in Tennessee was endowed with a disproportionate phallus which had been broken off by a plough while still in the ground. Two other stone phallic simulacra, twelve to fifteen inches in length, have also been unearthed in the same area.⁵ Similarly, phallic worship was also practiced in West Africa. The famed explorer, Richard Francis Burton, thus described it:

“Among all barbarians whose primal want is progeny, we observe a greater or less development of the phallic worship. In Dahomè [i.e., Dahomey, now Benin] it is uncomfortably prominent. Every street from Whydah to the capital is adorned with the symbol, and the old ones are not removed. The Dahoman Priapus is a clay figure, of any size between a giant and the pigmy, crouched upon the ground, as if contemplating its own attributes.”⁶

But it was, as it still is, mostly in India that phallic worship reached its highest culmination.

ADORATION OF THE LINGA

In India, too, the veneration of Shiva’s *lingam* goes back to the Neolithic period.

“...the basic and most common object of worship in Shiva shrines is the phallus or lingam. This form of the god can be traced back to the worship of primitive stone symbols as early as the neolithic period. Already at Mohenjo-Daro the lingam occurs, side

¹ P. Tompkins, *Mysteries of the Mexican Pyramids* (N. Y., 1976), p. 131.

² H. M. Westropp, *loc. cit.*

³ S. R. Fischer, *Glyph-Breaker* (N. Y., 1997), p. 159.

⁴ P. Tierney, *The Highest Altar* (N. Y., 1989), p. 62.

⁵ A. Wilder, in the appendix to H. M. Westropp & C. S. Wake, *op. cit.*, p. 85.

⁶ H. M. Westropp, *op. cit.*, p. 32.

by side with other important symbols similar to those employed in later Hindu iconography.”¹

“Conspicuous among the Indus Valley religious symbols is the phallus—to this day the most common object of worship in the sanctuaries of Hinduism, where it represents the generative male-energy of the universe, and is symbolic of the great god Shiva.”²

Images of the *lingam* are to be found all over India:

“Just as along the roads of Greek and Roman antiquity there might be seen images of Priapus at every field’s end, in other words, practically everywhere, so in India to-day we may come upon those little cylindrical boundary-marks, more or less ornamented, which are the *lingas*.³

Shiva’s *lingam* was also worn as a symbol by the Lingayat members of the Saiva sect.⁴ The symbol continues to be venerated in various Hindu shrines and temples. One of the most famous of these is the eleventh century Kandarya Mahadeva temple, itself part of the Khajraho complex in north-central India. The exterior richness of this temple is complimented with over 900 carvings depicting various deities, demons, dancing girls, and animals. The building was meant both as a dwelling for Shiva and as “a symbolic microcosm of the created world.” Its interior is somewhat darkened, as most Hindu temples are, but still decorated with intricate figures, mostly of an erotic nature, since Hindus hold that the sexual act symbolizes “the unity of the cosmos.” The congregation is forbidden to enter the Holy of Holies, known as the Womb House. It was in this inner sanctuary that Shiva’s *lingam*, constructed of marble, was housed. The cosmic connection was then initiated when the temple was consecrated, during which a priest would climb to the top of the temple’s highest pinnacle and “pierce” it “to create an aperture, representing the eye of the temple opening to the celestial sphere.”⁵

The *lingam* is also the central feature of the cave complex of Elephanta. As Zimmer describes it:

“The great subterranean rock-cut cave-temple of Elephanta, near Bombay, one of the most impressive and beautiful monuments of Hindu religious art, is adorned with many anthropomorphic representations of Shiva, as well as with scenes from his rich mythology. The central sanctuary of this extensive temple is a simple, monumental, square shrine, with four entrances on the four sides, each guarded by a pair of divine door keepers. Within is the austere symbol of the *lingam*, emanating to the four quarters its all-productive energy. This *lingam*, as the main stone image, forms the center of the innermost cella, the holy of holies or ‘womb house.’ In the innermost recess of

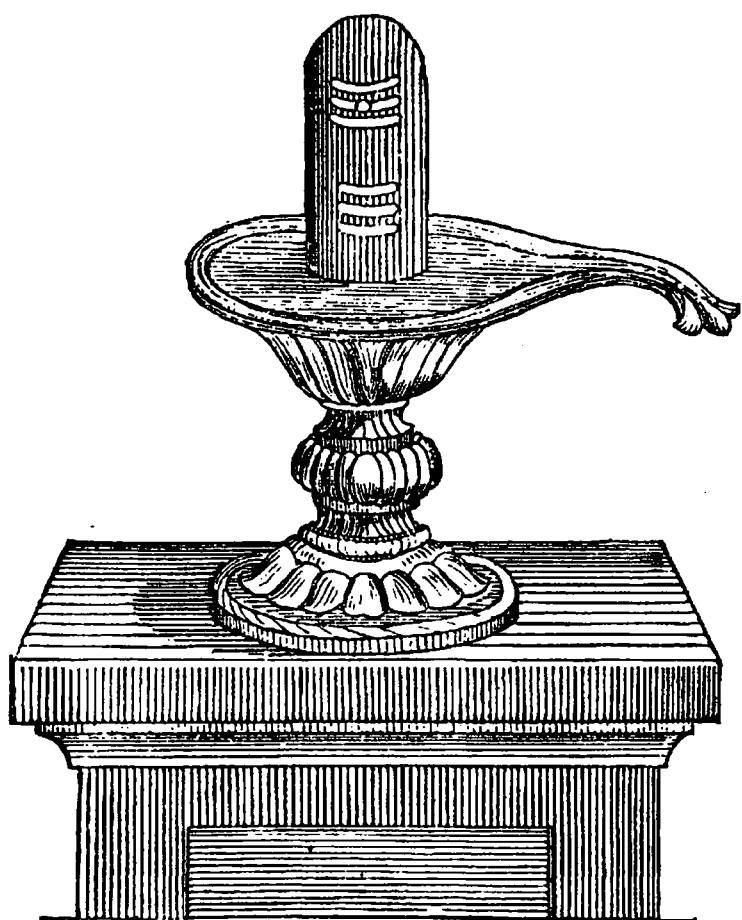
¹ H. Zimmer, *op. cit.*, p. 126; see also, A. F. Sjoberg, “The Dravidian Contribution to the Development of Indian Civilization: A Call for a Reassessment,” *Comparative Civilizations Review*, No. 23 (Fall 1990), p. 61.

² H. Zimmer, *op. cit.*, pp. 95-96.

³ H. de Wilman-Grabowska, *op. cit.*, p. 130

⁴ See here *Webster’s Collegiate Dictionary* (1977), under *Lingam*.

⁵ C. Farman, *et al.*, *Light in the East* (Alexandria, Virginia, 1990), pp. 133, 143.



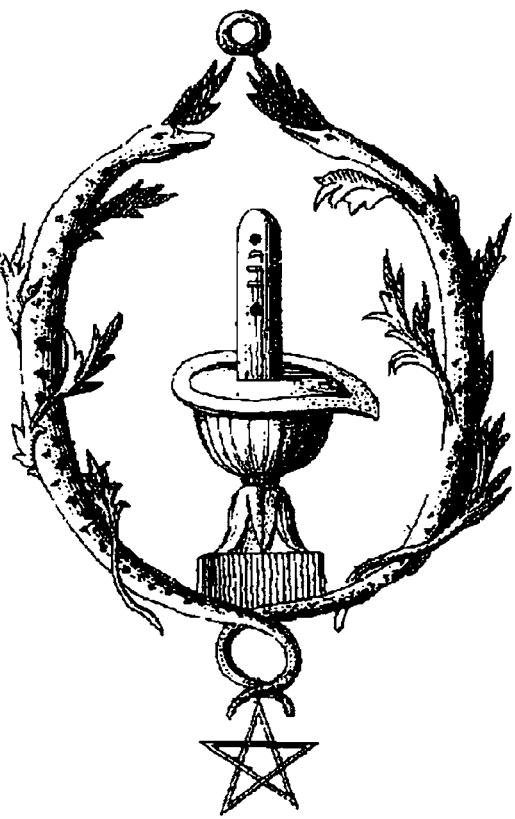
Lingam and *yoni* emblems on Hindu altar.

the organism of the temple it serenely stands, constituting the life-center of the subterranean cave.”¹

Small figures of the *lingam*, left by pilgrims as offerings at the monastery of Jangambari Math in central Benares, cover an entire courtyard with many others from previous devotees buried beneath them. *Over 60,000 of these figures have been counted.* The devout congregate at this monastery for the annual feast dedicated to the marriage of Shiva. During the ceremony the priest bedecks the main *lingam* with flowers, anoints it with clarified butter, and washes it with milk and water.²

¹ H. Zimmer, *op. cit.*, p. 127 (emphasis added).

² S. R. Rau, “Banaras: India’s City of Light,” *National Geographic* (February 1986), pp. 234-235.



Symbolic *lingam* and *yoni* with astral features

Outside of India, Shiva's *lingam* received veneration in Indo-China, especially during the Cham kingdom, as well as in Indonesia, especially in Java. Charles-Henri Marchal thus tells us that:

"In the days of its splendour the Cham kingdom was predominantly Saivite, and in the temples that have been preserved to the present time the form under which the Hindu god was most frequently worshipped was the *linga*. In Champa the *linga* is a monolith, as in Cambodia, but the shapes are more various: it is sometimes cylindrical, sometimes polygonal and cylindrical, sometimes shaped like a club, and even emphatically realistic in treatment. M. Parmentier notes a tendency to give a very definite personality to the *linga* by the addition of figures (*mukha-linga*). At other times the *linga* is enclosed in a sheath (*kosa*), often of great value, adorned with faces and inlaid with precious stones."¹

In Java, Shiva's *lingam* is fashioned after its Cambodian prototype, and quite often the image is set upon a richly ornamented pedestal to suit its religious importance.²

MODERN QUIRKS

Religious fervor knows no bounds, especially when fed by a fertile imagination. The mind of a religious person can recognize the sacred in the most unholy of objects. Throughout history, even down into the modern age, figures of angels, Jesus, as well as his mother Mary, have been recognized in patches and shadows that appear across the most unlikely of objects. Huge crowds are often generated by such "miraculous" apparitions, and these consist of the devout as well as the simply curious, to say nothing of those bent on ridicule and even mischief. Yet this is not merely a Christian phenomenon. Consider the following two examples, the first of which comes from Kashmir.

¹ C.-H. Marchal, "The Mythology of Indo-China and Java," *Asiatic Mythology* (N. Y., 1972), p. 224.

² *Ibid.*, p. 232.

An ice stalagmite which bears a fortuitous resemblance to a phallus exists in a cave on the Amarnath peak, 4,110 meters above sea level in Kashmir's Himalayas. Each year, thousands of devotees trek up to this natural shrine to pay homage to this icicle. Due to severe weather conditions, with heavy snowfall combined with fierce rains, 50,000 Hindu pilgrims got trapped on the mountain trail in 1996. About 20,000 of them were restrained by the biting cold in the shrine itself. Several attempts to rescue the trapped pilgrims had to be called off because of the severe weather. It was not until Indian army troops, together with some local villagers, were summoned that the stranded devotees along the 46 kilometer snow-laden trail managed to reach the base camps that were set up at Chandanwari and Pahalgam, from where many of them had to be carted to hospital. Another 300 pilgrims trapped along the most treacherous stretches of the mountain trail had to be evacuated by army helicopters and trucks. Buses and cars were used to cart the unfortunate zealots from Pahalgam to the nearest railways station at Jammu. Nor was that the end of it since the 280 kilometer highway was blocked by landslides, snow, and flood waters. At least 160 pilgrims lost their lives.¹

The second example comes from the state of California. It appears that even there, the worship of the *lingam* is so strong in some people that when a four-foot high, bullet-shaped traffic barrier, with which we are all familiar, was dumped in San Francisco's Golden Gate Park, it was elevated to the status of Shiva's sacred emblem. Esoteric symbols soon began to show up on the barrier, followed by flower offerings. Situated behind the Japanese Tea Garden, a rock garden was constructed around it, built from the stones removed from the ruins of a Spanish abbey that had been donated to the park decades earlier by William Randolph Hearst. The shrine, which is what it eventually turned into, drew pilgrims from as far away as India itself. Apart from those of the Hindu faith, it additionally attracted the attention of Buddhists and New Agers who also went there to pray, meditate, and make offerings to this most unlikely of fetishes. It has even been claimed to cure ailments, including arthritis.²

CONCEPTUAL DEGENERATION

As Westropp concluded: "The reverence, as well as worship, paid to the phallus in the early ages had nothing in it which partook of indecency: all ideas connected with it were of a reverential and religious kind...The indecent ideas attached to the phallic symbol were, though it seems a paradox to say so, the result of a more advanced civilization verging towards its decline, as we have evidence at Rome and Pompeii."³

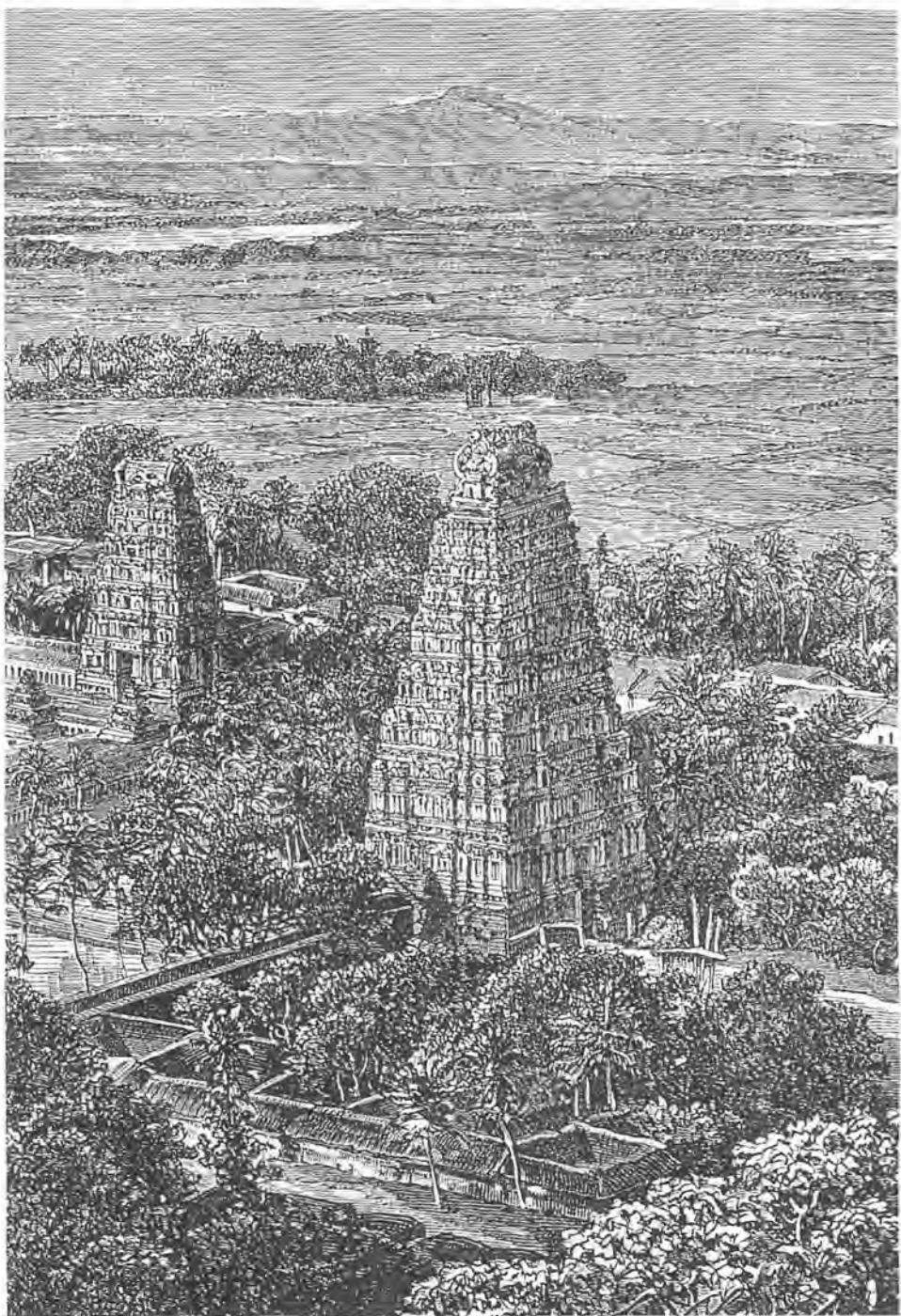
Or, as Constant remarked: "Indecent rites may be practiced by a religious people with the greatest purity of heart. But when incredulity has gained a footing among these peoples, these rites become then the cause and pretext of the most revolting corruption."⁴

¹ T. ta Maria, "Phallic Worship in the Modern World," *AEON* V:1 (November 1997), p. 78.

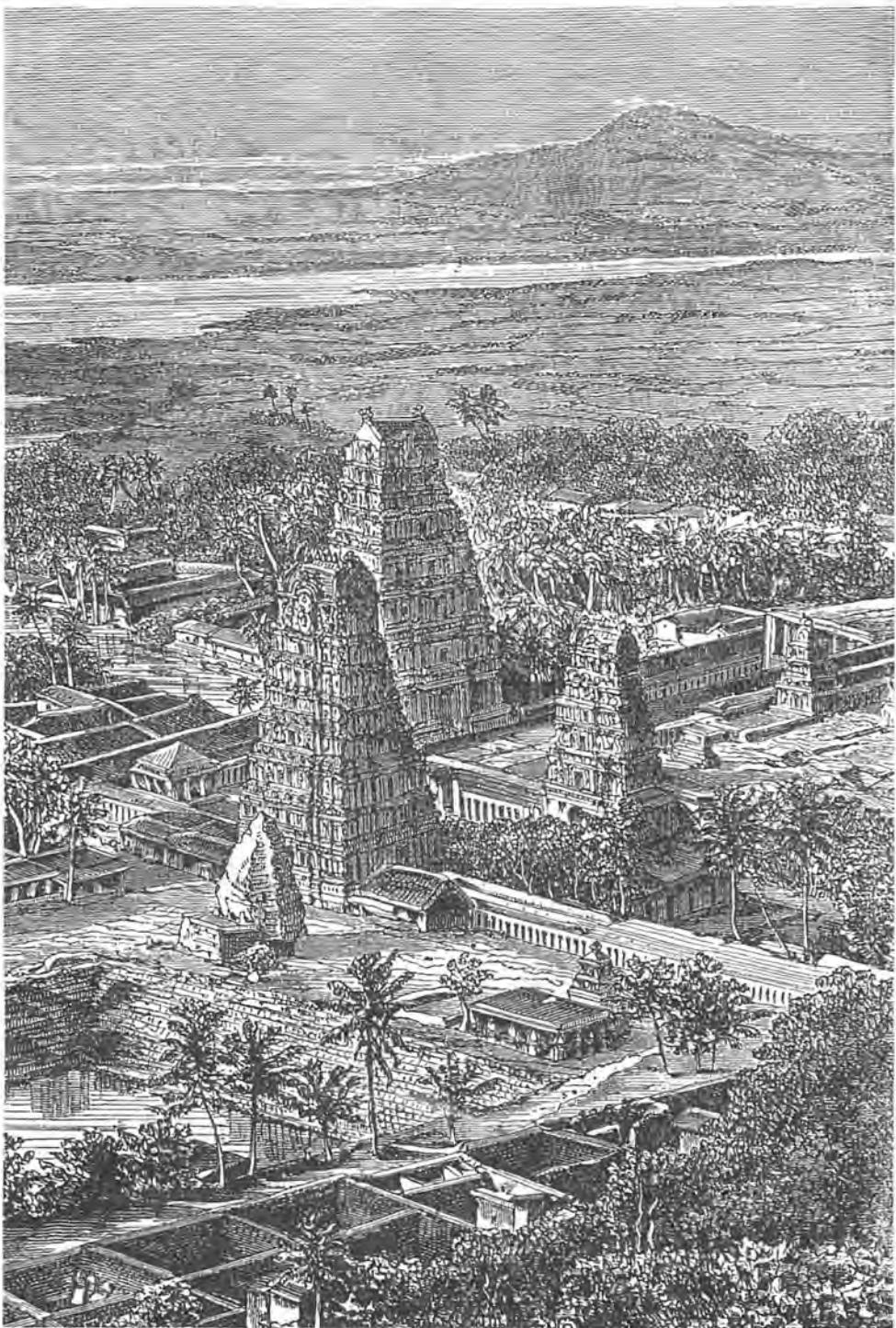
² *Ibid.*

³ H. M. Westropp, *op. cit.*, p. 30.

⁴ *Ibid.*



Above and opposite: Hindu temple complex at Madras, India.



So, similarly, Voltaire: “Our ideas of propriety lead us to suppose that a ceremony which appears to us so infamous could only be invented by licentiousness; but it is impossible to believe that depravity of manners would ever have led among any people to the establishment of religious ceremonies. It is probable, on the contrary, that this custom was first introduced in times of simplicity, that the first thought was to honor the deity in the symbol of life which it has given us. Such a ceremony may have excited licentiousness among youths, and have appeared ridiculous to men of education in more refined, more corrupt, and more enlightened times.”¹

As Westropp rightly deduced, in the western world, the original concept behind the divine phallus degenerated from “an object of reverence and religious worship,” to “a protecting power against evil influences,” ending as “a charm or amulet against envy and the evil eye.” On a different level, it resulted in acts of “mere licentiousness and dissolute morals.” But it also engendered “the natural desire of women...to be the fruitful mother of children.”² This, however, did not necessarily transpire in the East. Marchal, for instance, informs us that:

“This *linga*, in Cambodia, does not exclusively carry the phallic meaning sometimes assigned to it. It sums up the creative energy of the powers of nature; the sexual idea that may be attributed to it is incorrect if we halt on this particular concept alone; in Oriental symbolism it is one of the expressions of the intense life that ends in absorption into the godhead.”³

Religious sentiments and philosophical renderings aside, we must however stress the following: The description of Shiva’s *lingam* as “glorious and shimmering,” a “flamboyant pillar with the brilliance of a hundred fires,” and a “pillar of a thousand flames,” can hardly be interpreted metaphorically or as an emblem of fertility, especially when this is taken together with what we exhumed in our previous volume. As we saw there, the Hindu *lingam* does not constitute the only example of a fiery phallus. Like Shiva’s *lingam*, the Sethian ithyphallic *phaos rhyentes* was the symbolic representation of “the downward flow of light from above,”⁴ for, it was said “there was a ray coming from above from that perfect light held fast in the dark...”⁵

Since past mythologists have had nothing with which to compare it, their misguided efforts are understandable. Even so, it should have been evident from the start that the *axis mundi*, and the *linga* in particular, was a *visible* phenomenon. As often stated in this work and our previous one, it was a singular bright ray of light stretching from the nebula-enshrouded immobile proto-Saturnian sun all the way to Earth’s northern horizon.

This ray from above is understood as a sustained plasma discharge in the form of Birkeland current, a scaled-down version, or the slowly deteriorating remnant, of a plasma

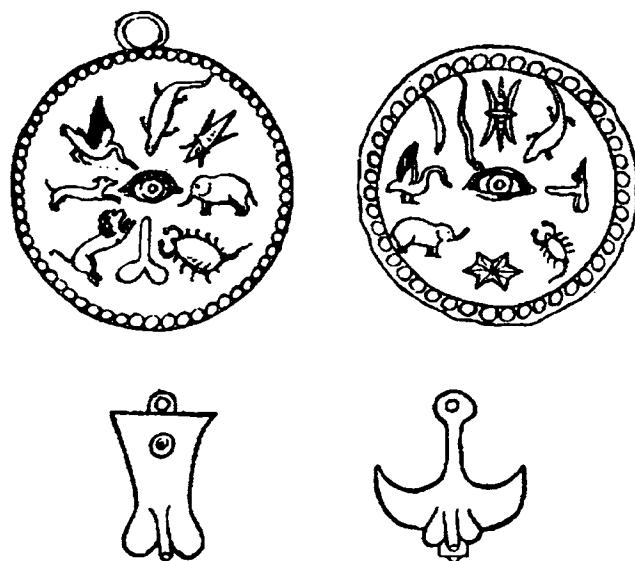
¹ *Ibid.*, pp. 30-31.

² *Ibid.*, p. 31.

³ C.-H. Marchal, *op. cit.*, p. 211.

⁴ W. Barnstone, *op. cit.*, p. 656.

⁵ *Ibid.*, p. 655.



Phallic amulets against the evil eye.

“jet” such as can be seen emanating from stellar, and even galactic, objects. Such stellar jets have now been observed, photographed, documented, and analyzed in *quantum sufficit*.¹ But, since we have also postulated that proto-Saturn was a sub-brown dwarf star, we must ask whether brown dwarfs are capable of emitting stellar “jets.”

BROWN DWARF JETS

To recapitulate what we disclosed in our previous volume, while adding some new evidence: Circumstellar disks and X-rays are both required for the emission of plasma “jets,” which “jets” are beamed axially, like the rays of a search-light, from both poles of the discharging star. Although the mechanism responsible for the emission of these “jets” has been utilized to explain the bursts of gamma rays from stars, which might or might not be correct, it definitely applies to the “jets” themselves. Even so, as of this writing, the mechanism is not yet fully understood. What is believed to occur is that the star’s magnetic field builds up during the formation of the disk, which then heats to such high temperatures that it unleashes a fireball of plasma. “The fireball is [then] funneled into a pair of narrow jets that flow out along the rotational axis.”²

Others favor an electrical explanation. The pulsar which has been claimed to be located at the centre of the Crab Nebula is believed to generate “huge electric voltages that accelerate matter and antimatter particles outward along its equator.” This “high-speed wind” plows into

¹ See here D. Cardona, *op. cit.*, pp. 461 ff.

² N. Gehrels, *et al.*, “The Brightest Explosions in the Universe,” *Scientific American* (December 2002), pp. 89-90.

the surrounding nebula, creating the shock wave that forms the circumstellar disk, which is here referred to as a set of rings. According to Koji Mori: "Those particles then move outward to brighten the outer ring and produce an extended x-ray glow." What is also spawned is an impressive turbulent "jet" radiating from both poles perpendicular to the rings.¹

In the end it may turn out that neither of the above two theories is correct—and I say this not in derision for, after all, discoveries of these nature are now piling up almost daily, and new discoveries may tend to refine or even negate either of the two hypotheses. What will not change is the association of circumstellar disks—or call them what you will—and X-rays with "jet" emissions.

The association of "jets" with X-rays has been discussed for years. Various galaxies are now known to have developed a close relationship between "jets" and X-rays. It has even become customary to speak of galactic "jets" as "X-ray jets." The so-called "knots" seen in the "jets" of various galaxies are also known to be X-rays sources.² Stars, too, are known to emit X-rays.

As we have already seen, brown dwarf stars have been found to be surrounded by scaled-down versions of circumstellar disks. X-rays have also been detected from brown dwarfs, the intensity of which surprised astronomers.³ X-rays have even now been discovered from a low mass brown dwarf. Dubbed TWA 5B, it was discovered in the binary star system known as TWA 5A by NASA's Chandra X-ray Observatory. Yohko Tsuboi reported this discovery from the Chuo University in Tokyo:

"Our Chandra data show that the X-rays originate from the brown dwarf's coronal plasma...The brown dwarf is sufficiently far from the primary stars that the reflection of X-rays is unimportant, so the X-rays must come [from] the brown dwarf itself. This brown dwarf is as bright as the Sun today *in X-ray light*, while it is fifty times less massive than the Sun."⁴

Of additional importance to us is Tsuboi's declaration that: "This observation...raises the possibility that even massive planets might emit X-rays by themselves during their youth!"⁵ In fact, as a NASA news release stated: "This discovery is an important piece in an increasingly complex picture of how brown dwarfs—and perhaps massive planets around other stars—evolve."⁶

Despite their relative diminutive stature, most of the first brown dwarfs discovered were still much more massive than Saturn, and so one wonders whether proto-Saturn *could* have been a sub-brown dwarf. But most of that has changed now. To give one example: The brown dwarf designated 2MASS-0415-0935 "may weigh so little that it falls in the range of what as-

¹ R. Talcott, "The Crab's Inner Workings," *Astronomy* (January 2003), p. 26.

² H. Arp, *Quasars, Redshifts and Controversies* (Berkeley, CA, 1987), p. 156.

³ D. Cardona, *op. cit.*, pp. 477, 482, where various authoritative sources are cited.

⁴ NASA's Marshall Space Flight Center NEWSROOM Release, "X-rays Found from a Lightweight Brown Dwarf," as posted on the Internet (March, 2003)—(emphasis added).

⁵ *Ibid.*

⁶ *Ibid.*

tronomers would usually call a giant planet.”¹ Defining these borderline bodies is “not so obvious,” says Frederick Vrba, “since these objects have the same masses, chemical compositions, and radii as planets.”² Besides, there is evidence which indicates that the planet Saturn had been much more massive *during the age of man*.

With X-rays and disks—the two most important components required for the emission of “jets”—already known to be associated with brown dwarf stars, it becomes quite evident that brown dwarfs should be prime candidates for the emission of astral “jets.” After all, as Pamela Gay has noted: “Jets are one of nature’s favorite ways of spewing matter around.”³

These galactic and stellar jets are of immense size. William Keel, for instance, reports that higher-resolution radio observations of a Seyfert galaxy show “jets” that “can span more than a million light years.”⁴

“In some cases, the highest-resolution radio data show that material is still being ejected from the core along the jets at respectable fractions of the speed of light. This provides another important clue to the power source in AGNs [active galactic nuclei]—it can eject material for millions of years at a stretch along a single axis, like some kind of cosmic flywheel.”⁵

The immense size and speed of these galactic “jets” will be seen by some to raise havoc with our supposition that something similar could have transpired in relation to such a relatively minuscule object as a brown dwarf star, to say nothing of a *sub*-brown dwarf. But if brown dwarf stars can be surrounded by a scaled-down version of a circumstellar disk, why cannot they emit a scaled-down version of a stellar jet?⁶

To be sure, when I discussed this problem with the astrophysicist Doug Lin, his verdict was that “jets” from brown dwarf stars were “not only possible, but very probable.”⁷ He did, however, warn that the detection of brown dwarf “jets” would be very difficult. And this is understandable. The discovery of some of these brown dwarf stars has already stretched the *present* limit of detection. The disks which have been detected around them have a much greater diameter than the dwarfs themselves and are therefore a little easier to detect once the dwarfs have been pin-pointed in space. Any “jets” emanating from them, however, would have a much lesser cross-sectional diameter. At their distances, those “jets” pointing directly toward Earth would have a probability of detection close to zero. “Jets” which occur at an angle or perpendicular to our line of sight would have a slightly better chance of being detected, but, because of their smaller cross-sectional diameter and the diaphanous nature of their light, these, too, would be difficult to detect. Despite all that, Lin’s privately tendered personal opinion was lent further probability less than a year after he had voiced it. Spectral

¹ D. Tytell, “The Coolest Brown Dwarf,” *Sky & Telescope* (April 2003), p. 27.

² *Ibid.*

³ P. L. Gay, “Jets From a Black Hole,” *Astronomy* (January 2003), p. 26.

⁴ W. Keel, “Quasars Explained,” *Astronomy* (February 2003), p. 36.

⁵ *Ibid.*

⁶ See here, for instance, the argument presented in D. Cardona, *op. cit.*, pp. 480 ff.

⁷ D. Lin to D. Cardona, verbal communication at a family dinner on December 28, 2003.

lines which are normally observed in stellar “jets” have now been detected in brown dwarfs.¹ And why should this not be the case? Although astral “jets” remained something of a mystery,² their association with circumstellar disks has long been proposed.³

There is one further quality inherent in cosmic “jets” that should be noted at this point, and that is the fact that “jets” have counter-“jets.” In other words, as mentioned above, cosmic “jets” are emitted from *both* poles of the radiating object. Astronomically speaking, this seems to be the manner in which momentum is conserved. As Halton Arp demonstrated: “In astronomy, jets tend to have counter-jets, radio-source ejections tend to occur in opposite directions and, in general, to conserve a momentum in any ejection process one would expect a counter-ejection.”⁴ As far as our own scenario is concerned, this would mean that proto-Saturn would also have developed an opposing “jet” from its north pole to counteract the “jet” emanating from its southern one toward Earth. However, with Earth having been situated *within* the “jet” directly beneath proto-Saturn’s south pole, this counter-“jet” would not have been visible to man and we should not, therefore, expect to find any intimation of it in the mytho-historical record.

THE END OF AN ERA

In brief: People in those days seem to have lived their lives in relative harmony with the land they occupied, more or less oblivious of the proto-Saturnian sun shrouded in its nebulous disk atop its towering plasma column. They slept and woke and worked, chipping away at rocks to manufacture the tools and weapons they required. The men, and perhaps some of the women, hunted while the majority of the females foraged for edible roots and herbs. They were acquainted with the use of fire, having already invented oil lamps with which they illuminated the caves they painted in.⁵ They obviously bartered with neighboring tribes, even though hostilities ensued when these trespassed their boundaries.

In their spare time, they learned to engrave and paint the beasts that roamed across their territorial domain at the edge of the ice, north and south of Earth’s glaciated belt. These animals seem to have been what impressed them most. They also etched, engraved, carved, and molded figures of their own kind, both male and female, but seldom with the accuracy and care they reserved for the portrayal of animals.

It is almost certain that they practiced a form of sympathetic magic which they believed would enhance their chances in the hunt. They also seem to have indulged in a primitive form of music.

There was ample time for mating and children were probably raised communally. As they grew older, these would have been taught how to manufacture tools and weapons, how to produce fire, how to hunt, and what roots and herbs they should look for. Those who exhibited a talent for it became artists.

¹ R. Naeye, “‘Free-Floating Planet’ Claims Bolstered,” *Sky & Telescope* (October 2004), p. 20.

² O. Blaes, “A Universe of Disks,” *Scientific American* (October 2004), p. 50.

³ *Ibid.*, p. 52.

⁴ H. Arp, *op. cit.*, pp. 35, 136.

⁵ J. Jelinek, *The Pictorial Encyclopedia of the Evolution of Man* (London, 1975), pp. 329, 331.

There is some evidence which has been interpreted to mean that a certain amount of cannibalism ensued. On the other hand, it has also been theorized that they tended their sick and those advanced in age, and when these died they buried them, as they buried all those who had passed on.

It was a simple life with few requirements, which is not to say that it was always, or everywhere, without hardship. But all that was about to change—and the change came suddenly.

PART FOUR

THE FLARE-UP

Chapter 13

Prelude to Creation

THE ASTRONOMICAL BACKGROUND

At the risk of repetition, but in order to better understand what I am about to describe, a brief synopsis of Earth's primordial astronomical condition is pertinent at this point. So bear with me a while longer. We shall be entering an entirely new domain, pun intended, soon enough.

What we have managed to reconstruct from the mytho-historical record, Earth sciences, and astronomy, is that the present gas giant we know as the planet Saturn is the end result of what had previously been a sub-brown dwarf star free floating in space outside the demarcation of the Solar System. During this time, Earth was a satellite of this proto-Saturnian sub-star which, because of its proximity, loomed large in the sky as a distinct disk larger than the apparent size of the full Moon. During this same period, a nebulous disk surrounded the Saturnian primary. And, shooting straight down from what we would consider to have been proto-Saturn's south pole was the jet-like stream of plasma in the form of a sustained Birkeland current. Earth itself was "suspended" directly "beneath" proto-Saturn's south pole, sharing the same axis of rotation.

Apart from its periodic change of distance from its primary, Earth's location would not have changed from its inception. One possibility for this is that Earth was ejected *from* proto-Saturn; another is that proto-Saturn and Earth were born in unison from the very plasmatic "jet" that joined them together.

The ejection of cosmic bodies from other bodies, even entire galaxies from galaxies, is not new to astrophysics.¹ Some of these ejections occur laterally.² Others occur axially.³

The belief that planets are formed through the accretion of matter from circumstellar disks is no longer the pillar of planetary science it used to be. For one thing, it has been pointed out that if the planets were formed from the same nebular disk from which the Sun itself was born, the Sun's equator should lie in the planetary plane. Why, then, is it tilted over at an angle of 7.25°? Cosmogonists, who are only concerned with how the Solar System formed, argue that this angle "is so close to zero that it really doesn't matter." Cosmologists, who are concerned about the entire Universe, rightly claim that 7.25° is hardly zero. Cosmogonists have since covered their behind by assuming that since the Sun is believed to be losing mass, it might have slipped a little.

Others have indicated that it is hard to fathom how the outer planets could have formed in the outer reaches of the Sun's nebular disk where matter would have been so spread out that

¹ See here D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 472 ff., where other sources are cited.

² H. Arp, *Quasars, Redshifts and Controversies* (Berkeley, CA, 1987), p. 152.

³ *Ibid.*, p. 154.

it would not have been able to clump together in the allotted time.¹ Most astronomers felt quite unhappy with this.

In 1998, Alan Boss suggested that “density fluctuations in the disks could form dense clumps that rapidly collapse into giant planets.” In a computer model of his own creation, however, the “dense clumps” tended to disperse. Tom Quinn then came to the rescue by refining “the struggle between competing forces in the disc”—that is, the struggle between gravity and the orbital speed of the “dense clumps.” According to Quinn, in the end gravity wins and, in a few *hundred* years, no less, “half a dozen Jupiter-sized bodies” would be formed.² However, if I may give vent to my ignorance, if there were but sparse particles in the outer reaches of the disk, gravity would have had little to play with.

Besides all that, circumstellar disks, or, as they are sometimes miscalled, planetary nebulae, do not last all that long. In 2001, Robert O’Dell reported that: “Radiation evaporates away the disks in a few hundred thousand years or less,” leaving little or no time for planets to coalesce.³ By the end of 2002, O’Dell’s “or less” seems to have won out. By then the consensus of opinion was that the disks “exist for only a few hundred to perhaps *one* thousand years—an astronomical blink of an eye.”⁴

Given the above, the birth of planets by ejection from stars, which is gaining wider acceptance by astronomers, seems all the more plausible. Moreover, quite a few members of this new breed agree that these ejections take place in opposite and aligned directions, usually axially, before being scattered to settle in equatorial planes.⁵ Wallace Thornhill was even bold enough to suggest that “small stars like proto-Saturn undergo variable behavior like large, brighter stars.” This, according to him, “may be caused by external changes in the electrical environment or by an internal build-up and sudden redistribution of charge.” As far as Earth is concerned, Thornhill could find no objection to its ejection by proto-Saturn in what he believed to be “a normal process for such bodies.”⁶

Out in space, needless to say, there would have been no force to disrupt the axial coupling of proto-Saturn with Earth, which would have conserved its momentum of ejection. Proto-Saturn’s gravitational attraction, whether electrically induced or not, would not have allowed Earth to escape from its primary. Due to gravitation, ejected objects *do* tend to slow down.⁷ Knots in cosmic “jets,” which is what these plasma currents have been misnamed, are not always seen to travel down their extents. The knots, or plasmoids, in the elongated

¹ “The Word Cosmogonist,” *New Scientist* (September 28, 2002), p. 49.

² J. Hecht, “Gas Planets Grown in Next to No Time,” *New Scientist* (December 7, 2002), p. 17.

³ K. A. Svitil, “Planets in Peril,” *Discover* (August 2001), p. 11.

⁴ S. P. Maran, “Astronomy’s Top 10,” *Astronomy’s Explore the Universe*, 9th Edition 2003 (special edition of *Astronomy*—December 31, 2002), p. 16 (emphasis added).

⁵ See for instance, T. Van Flandern, *Dark Matter, Missing Planets and New Comets* (Berkeley, California, 1993), pp. 141-142; but see also D. Cardona, *op. cit.*, pp. 471 ff. for further sources.

⁶ W. Thornhill, on the Intersect electronic discussion group sponsored by KRONIA Communications, December 9, 2002; but see D. Cardona, *op. cit.*, pp. 487-490 for an alternative mechanism which, however, would still be in line with our reconstruction.

⁷ See here, for instance, H. Arp, *op. cit.*, p. 114.

plasma feature of M87 showed no motion in observation between the years 1934 to 1980.¹ The speed of similar, but much smaller, knots in the plasma tail of comets is also very erratic, with their acceleration “turning on and off capriciously.” Some cometary knots were seen to have “very little speed or acceleration.”² It cannot therefore be a law of plasma physics that bodies embedded in cosmic “jets” must travel on forever. In a system as compact as the proto-Saturnian one we are discussing, it is evident that, in the end, gravity *will* win out.

Besides the “jet” of plasma that connected Earth to proto-Saturn, the system as a whole was also encased in its own plasmasphere, a plasmaspheric bubble of as yet undetermined size and shape. Such plasmaspheres are now known to be everywhere. Everything in the Universe seems to be encased in a plasmasphere. This includes our own galaxy, the Milky Way. “Star tracking,” writes Bob Berman, “reveals that our galaxy is immersed in a gigantic, near-invisible shell of matter like a ship in a bottle.”³ Calculated to extend outward at least 150,000 light years, this shell is presently believed to consist of dark matter, that theorized chimerical substance that continues to elude those who have been searching for it. This undetected dark matter is claimed to constitute 30 percent of the Universe. Its just as undetected kin, dark energy, is claimed to constitute the other 70 percent.⁴ I won’t quibble about the fact that the total of these percentages end up leaving no room for anything else in the Universe (which would make for absolute invisibility in any case). I merely point to that other claim that 99.9 percent of the Universe consists of plasma.⁵ At least this leaves something other than itself to account for what we see. More than that, unlike dark matter and dark energy, plasma is detectable. Forget dark matter. It is quite obvious that what has been encountered as a “near-invisible shell” around the Milky Way is its plasma envelope.

The Sun, too, is encased in a plasmasphere, which is called the heliosphere.⁶ In fact, the Sun’s heliosphere encases the entire Solar System.⁷ Its edge is presently believed to lie anywhere between 2 and 10 *billion* miles from the Sun. Within this heliosphere, the giant planets are also encased in their own plasmaspheres. Jupiter, for instance, is now known to be surrounded by a magnetospheric bubble that has been calculated to be twenty times larger than the Sun.⁸ The remains of proto-Saturn’s plasmasphere continues to discharge to the present day in the form of a plasma doughnut which is known to surround the planet.⁹ Venus possesses a plasmasphere in the form of a cometary tail that spreads close enough to “tickle the

¹ A. L. Peratt, *Physics of the Plasma Universe* (N. Y., 1992), p. 245.

² C. Sagan & A. Druyan, *Comet* (N. Y., 1985), pp. 162-163, 168.

³ B. Berman, “Our Galactic Carousel,” *Discover* (September 2002), p. 31.

⁴ M. Bobra & A. MacRobert, “New Support for Dark Energy,” *Sky & Telescope* (February 2003), pp. 18-19.

⁵ NASA Internet headline dated September 1999—see “Plasma, Plasma, everywhere.” *SIS Internet Digest* (1999:2), p. 5.

⁶ A. Yee, “Sir Fred Hoyle Vindicated After 60 Years,” *SIS Internet Digest* (1998:2), p. 12.

⁷ T. Yulzman, “Pioneer 10 Maps Cosmic Bubble,” *Science Digest* (September 1982), p. 17.

⁸ NASA release as reported by W. Thornhill, “Did They Really Say That?” *Thoth* (electronic newsletter) III:1 (January 24, 1999), p. 12; see also, *New York Times* (May 29, 1999); *New Scientist* (August 7, 1999), pp. 26-31; U. L. McFarling, “Bubble Around Jupiter is Solar System’s Largest Object,” *Houston Chronicle.com* (March 13, 2002).

⁹ W. Thornhill, “The Electric Saturnian System,” *AEON* VI:1 (February 2001), p. 42.

Earth when the two planets are in line with the Sun.”¹ At present, even Earth is embedded in its own plasma sheath, which astronomers have for years referred to as its magnetosphere.² Calculated to extend at least 12,000 miles into space, it has even been “photographed.”³

During the time with which we are concerned, Earth’s heat was derived solely from the proto-Saturnian sun. This heat would have radiated directly from proto-Saturn’s close proximity about Earth’s northern hemisphere. The southern latitudes would also have received sufficient warmth, *even if a feebler light*, from the radiation that would have been reflected off the inner surface of proto-Saturn’s plasmasphere within which Earth was enveloped. In the northern hemisphere, this indirect radiation would have added to the direct heat and light received from above Earth’s northern pole. Thus, for long periods of time, Earth’s climatic environment would have been one without seasonal change, luxuriating in one single season of eternal spring,⁴ even if latitudinal temperatures would have varied slightly from one another. Tropical and/or sub-tropical flora and fauna were therefore able to thrive in Earth’s northern region, even within the present Arctic circle, and the possibility exists that this flora and fauna originated in these regions before migrating to more southerly latitudes.

To early man, proto-Saturn would have been the only visible celestial body in Earth’s primordial sky. Due to its axial coupling with Earth, it would have appeared to be permanently immobile in Earth’s north celestial pole.

Out in space, the Sun was yet too far away to have been seen. The Moon had not yet been captured.⁵ Because of their apparent dimness, the stars, which should have peppered the sky, were shielded from view by the opacity of proto-Saturn’s plasmaspheric shell. At present, all plasmaspheres within the Solar System, as also the Sun’s heliosphere, are entirely transparent. Plasmaspheres, however, *can* be opaque, as proto-Saturn’s seems to have been. According to the plasma physicist Anthony Peratt, a “plasma cloud...indeed can vary between transparent and opaque at different wavelengths.”⁶

With a sun that shone but dimly red that neither rose nor set, that neither waxed nor waned, ancient man had no means of telling the passage of time.⁷ This was an era which ancient man remembered as a timeless age during which the world was bathed in the dim perpetual light of a pre-dawn sky.

It was in this milieu that Neanderthals and Cro-Magnons co-existed.

¹ *Idem, The Electric Universe* (Beaverton, Oregon, 1997), p. 18.

² R. Juergens, “Reconciling Celestial Mechanics and Velikovskian Catastrophism,” *Pensée IVR II* (Fall 1972), p. 12; R. W. Schunk, *et al.*, “The Flow of Plasma in the Solar Terrestrial Environment,” *Final Technical Report*, Utah State University Logan Center for Atmospheric and Space Sciences (September 1990); W. Thornhill, during the discussion period at the September 1999 SIS Silver Jubilee Conference, *Chronology & Catastrophism Review* (2000:1), p. 94.

³ K. A. Svitil, “Ring of Fire,” *Discover* (September 2000), p. 26.

⁴ See here D. Cardona, *op. cit.*, pp. 351 ff.

⁵ Of the present theory concerning the fissioning of the Moon from the solid body of Earth, which this author does not subscribe to, we will have much to tell in a future work.

⁶ A. L. Peratt, on the Intersect electronic discussion group sponsored by KRONIA Communications, April 26, 2002.

⁷ See here D. Cardona, *op. cit.*, pp. 305 ff.

PREDETERMINED ENCOUNTER

The hypothesis that the current planets of our Solar System did not form within it is presently, even if slowly, gaining acceptance. Under this scheme, the planets are not really the Sun's prodigy, but, rather, its adopted children. As the editors of *New Scientist* reported, it is now believed, at least by a few, that the "sun took shape somewhere in the Galaxy," while the planets formed somewhere else. As the Sun then "sailed along," it "picked up the planets" and claimed them as its own.¹

Whether it was the Sun that "sailed along" to pick up the planets, or whether it were the planets that did the sailing, is actually meaningless. In reality, the Sun and the Saturnian system were both sailing along toward each other. One can even claim that the proto-Saturnian system's entry into the Sun's domain was predetermined inasmuch as that is the direction in which it was headed. Had the Sun not been in its way, it would have gone on unmolested.

If the direction in which proto-Saturn, with Earth in its tow, was heading is claimed to have been fortuitous, then so be it. But let it not be assumed that life on Earth would not have survived had proto-Saturn not ended up in the Sun's custody. Having thrived for ages outside the present Solar System, life would have continued to endure.

Despite the fact that brown dwarf stars are less massive than the Sun, and despite the fact that their output of heat is also much less, they tend to radiate for much longer *precisely because of their lesser mass*. Given the calculated rate of a brown dwarf's heat dissipation, *and barring any accident*, such a star would have retained enough heat for life to thrive on a nearby planet for more than 1000 billion years.² The Sun, on the other hand, has been claimed to have a life of "a mere 8 billion years."³

In the end there is no point in quibbling about "what if" or "what would have happened if not." We bridged the gap and we *did* survive the transition. I will not even say "be thankful for it" because, in some ways, our ancestors had been better off. For one thing, if nothing else, if Earth is really only an approximate 4.6 billion years old, it should already have lived half its allotted life. Had it remained a satellite of the brown dwarf star that was proto-Saturn, it would still have been in its infancy. Of course, the above life spans have been calculated on the assumption that the bodies involved are internally fueled rather than electrically imbued externally. But let that pass.

At present, the northern stars are seen to circle around the Pole Star, while those in a more southerly latitude are seen to rise and set from east to west. As every educated schoolchild knows, this is an illusion brought about by Earth's daily rotation. I hope the reader will not snicker at this reminder. Forgetting what the ancient Greeks had already discovered, it took until the sixteenth century for modern man to realize this fact. And then, for years after, it continued to be believed that, apart from this illusion, the stars do not change in their relation to one another—that, in fact, the stars are fixed in their allotted locations. As we

¹ "The Word Cosmogonist," *New Scientist* (September 28, 2002), p. 49; see also D. Cardona, *op. cit.*, pp. 321-342.

² K. Croswell, "Red, Willing and Able," *New Scientist* (January 27, 2001), p. 30.

³ *Ibid.*

now know, although it takes long periods of time to visually detect their changed positions, stars do move. They travel through space in groups and even individually.

So-called pulsars, which are believed to be fast-spinning neutron stars, seem to travel poleward. At least two of them have been found to do precisely that. As reported in *Sky & Telescope* in the year 2000:

"The Chandra X-ray Observatory has found an unexpected peculiarity shared by the young pulsars in the Crab and Vela supernova remnants. Both pulsars appear to be flying through space pole-on."¹

Of additional interest is the fact that both these pulsars shine brilliantly in X-ray emissions; both are surrounded by nested rings of gas glowing in X-rays; both emit "jets" from their poles perpendicular to their circumstellar rings; and the "jets" of both "line up remarkably well with the direction of each pulsar's motion across the sky."²

By 2006, three other pulsars were also said to be showing hints of axial jet alignment with the direction of their motion across space. And this, it has been conceded "is no coincidence."³ In an additional analysis of the polarization of radio emissions from 20 pulsars, 10 of them have been discovered to have their spin axes aligned with their proper motion across the sky. "Whatever mechanism kicks neutron stars," wrote Alan MacRobert, "seems to do it pole-on."⁴

Pulsars have been calculated to be no more than ten or twenty kilometers in diameter.⁵ But, in most of the above respects, they not only resemble normal stars—if there *is* such a thing—but also the less massive brown dwarf stars. Would it then be too bold to assume that *some* normal stars also travel poleward through space? That question was asked by this writer in July 2004.⁶ An affirmative answer came back some six months later through a study of Regulus' rotationally induced distortions.

The massive first-magnitude Regulus is the brightest star in the constellation Leo and one of the brightest in the entire night sky. Its luminosity is almost 350 times that of the Sun. Certain characteristics of this star had been known to astronomers for years, others came to light in 2005. Not only is this star's diameter 5 times that of the Sun, it additionally rotates much faster. While the Sun completes a full rotation in about 24 days, it takes Regulus a mere 15.9 hours. This has given Regulus "a bulging waistline," an equatorial diameter that is one third larger than its polar one. While the Sun's equatorial spin is approximately 4,500 miles per hour, that of Regulus reaches nearly 700,000 miles in about the same time. What has however floored Hal McAlister and his team from Georgia State University is that, despite its oblate shape, Regulus, too, is hurtling through space poleward.⁷

¹ "Do All Pulsars Fly Pole-First?" *Sky & Telescope* (September 2000), p. 20.

² *Ibid.*

³ A. MacRobert, "Neutron Stars Flying Pole-First," *Sky & Telescope* (February 2006), p. 20.

⁴ *Ibid.*

⁵ See Reference #30.

⁶ D. Cardona, "Prelude to Creation," *AEON* VI:5 (July 2004), p. 26.

⁷ www.universetoday.com (January 21, 2005).

"We're looking at the star essentially equator-on, and the spin axis is tilted about 86 degrees from the north direction in the sky [McAlistair reported at the time]. But, curiously enough, the star is moving through space in the same direction its pole is pointing. Regulus is moving like an enormous [but flattened] spinning bullet through space. We have no idea why this is the case."¹

And, as I also asked back in 2004,² if stars, why not brown dwarfs?

One indication that the proto-Saturnian system had been traveling poleward is evidenced, although not proven, by the present angle of Saturn and Earth's rotational axes. Saturn's axis is presently tilted at 26.7° to the Solar System's plane of the ecliptic. That of Earth is a close 23.45° . This seems to be an indication of proto-Saturn and Earth's former axial sharing. It is therefore here assumed that the proto-Saturnian system would have approached the Solar one at close to one of these angles. For reasons which I must defer to a future work, it is also assumed that proto-Saturn was "leading" Earth in its inexorable journey toward the Sun. Whether the approach was from "above" or "below" the Sun's equatorial plane is not easily ascertainable.

CONTACT

As the proto-Saturnian system crept ever closer, there came a time when the Sun's attractive influence heightened its exertion on the intruder's directional vector. This would then have increased the proto-Saturnian system's velocity toward the Sun. Had the proto-Saturnian system been headed *directly* toward the Sun, none of us would be here to debate the issue since proto-Saturn, with Earth in its tow, would eventually have collided with the Sun to be swallowed within its furnace. Since this did not transpire, it becomes obvious that proto-Saturn's vector was not aimed directly toward the Sun. In fact, because of the relatively long time it must have taken for proto-Saturn to settle within the Sun's dominion, we are forced to conclude that the line of approach was toward the periphery of the Sun's heliosphere. Proto-Saturn's increased velocity would then have been damped by the initiation of a slow circular motion around the center of the Sun's extended axis. Probably for the first time since its inception, the proto-Saturnian system fell into an orbit. It was, however, an open-ended orbit which, in keeping with proto-Saturn's poleward motion, turned into an ever-closing spiral. Slowly but surely, this brought the proto-Saturnian system ever closer to the Sun's equatorial plane. Before this happened, however, it was inevitable that proto-Saturn's plasmasphere would eventually come in contact with the Sun's heliosphere. At first both plasmaspheres would have brushed against each other as proto-Saturn spiraled slowly in. And that is when the fireworks began.

The hypothesis that proto-Saturn, with Earth in tow, had been an "outside" system which was later captured by the Sun owes its origin to Ralph Juergens.³ It was he, back in 1977, who claimed that, in such an encounter, the Sun would steal Saturn's fire.¹

¹ *Ibid.*

² D. Cardona, *loc. cit.*

³ R. E. Juergens, "Juergens Replies" to "The Critics and Stellar Energy," *SIS Review* II:2 (December 1977), p. 49.

"Up to this moment Saturn, as a diminutive star, may have been further along in the process of becoming [electrically] charged to local galactic space potential than the much larger Sun. But the Sun captures Saturn, whose discharge is diverted to the new ruling body. Suddenly, Saturn finds itself much too highly charged for its altered environment."²

Twenty three years later, Wallace Thornhill picked up the ball and took it further. As he stated:

"After an existence independent of the Sun, [proto-Saturn] seems to have encountered that star at some time within the memory of mankind. The size, shape and colour of the envelope of proto-Saturn would have been disturbed as soon as the plasmaspheres of the Sun and proto-Saturn collided. To give some idea of distance when this occurred, the most distant spacecrafts from the Sun are twice the distance of Pluto and have still not reached the boundary of the Sun's plasmasphere or heliosphere. So proto-Saturn would have begun showing effects while the Sun was no more than a bright star in its sky..."³

In reply to an appeal to clarify the issue, Donald Scott had the following to say:

"When two bodies (such as proto-Saturn and the Sun) are very distant from each other, each is surrounded by a plasmasphere the effect of which is to completely isolate them electrically from one another. During this time only gravitational effects are felt between them.

"The two bodies, because they have come from very different locations, in all probability have very different inherent voltages. When and if they get close enough together such that the outer surfaces of these plasmaspheres touch each other, there will suddenly be a conducting path between them. (They 'see' each other electrically.) The higher voltage body will throw electric charge toward the lower voltage body (an electric current—probably in the form of an arc discharge—will flow)."⁴

According to Scott, neither body would lose its plasmasphere. Eventually, the two plasmaspheres "would meld together—kind of like two soap bubbles coming together and becoming, at first, a single 8-shaped plasmasphere containing both bodies who then can 'see' each other electrostatically." To which he added: "All hell then breaks loose."⁵

After untold ages of sameness, changes began to appear in man's primordial sky. It seems, however, that hell did not break loose all at once.

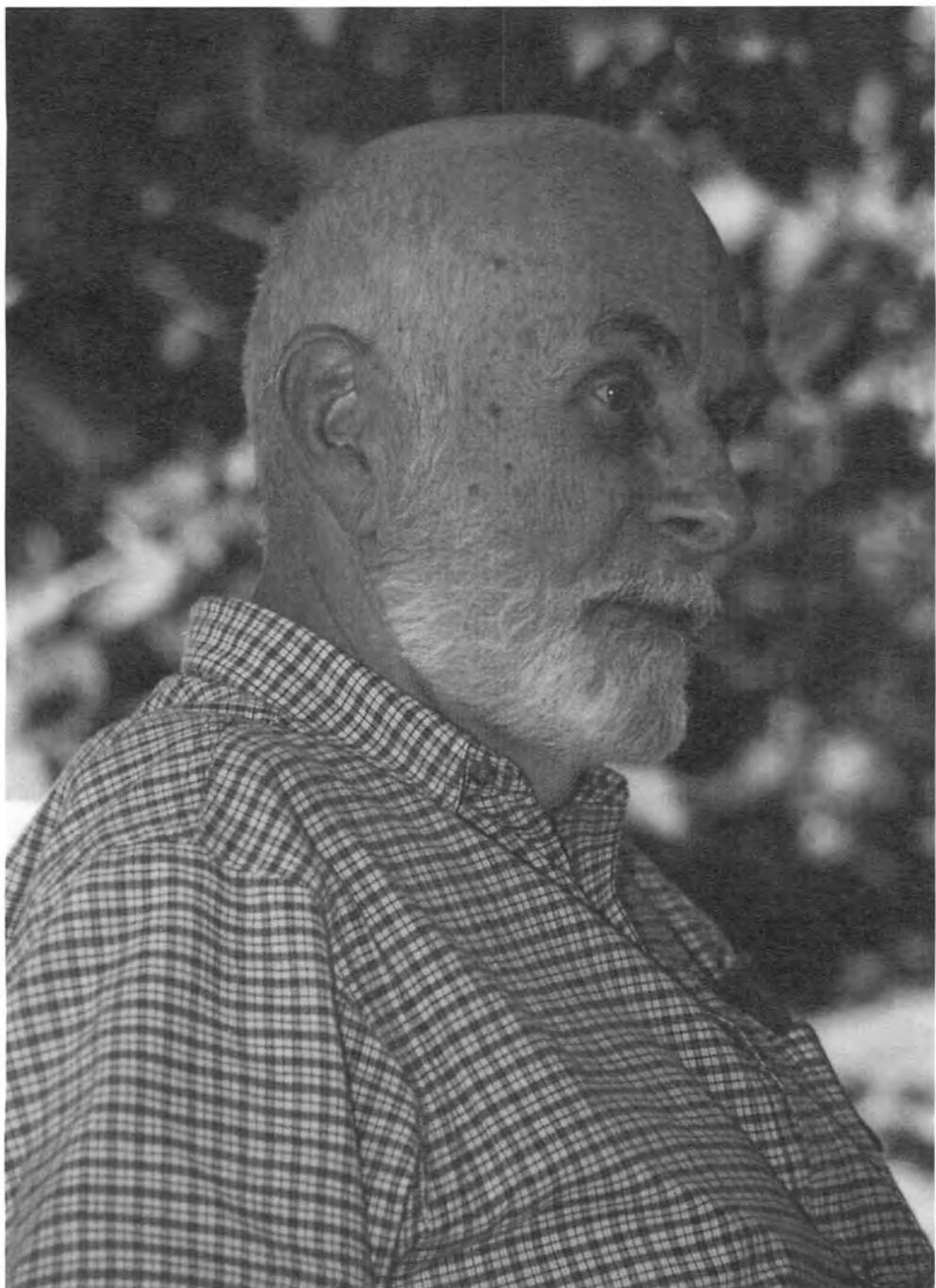
¹ *Ibid.*, p. 50.

² *Ibid.*

³ W. Thornhill, "Stars in an Electric Universe," *AEON* V:5 (January 2000), p. 48.

⁴ D. E. Scott to D. Cardona, private e-mail communication, June 18, 2003.

⁵ *Ibid.*, June 19, 2003.



Donald E. Scott.
(Photograph—2005—by the author.)

COLUMNAR INSTABILITIES

As the two plasmaspheres began to brush against each other, the first changes seem to have taken place in proto-Saturn's astral "jet." Similar, but naturally less massive, plasma columns are artificially reproducible in laboratories. Strong jolts of current passing through such

plasma columns can result in what is known as a pinch effect. The term is aptly named since this is exactly what transpires. The columnar plasma is actually pinched and narrows at the point of pinch.¹ More than that, these columns can develop more than one pinch, one above the other, resulting in what can best be described as a segmented column which has been likened by some to a string of sausages. To top all that, these pinches can then develop further instabilities. While the electronics involved in this process are much too complex to be comprehended by the uninitiated, Anthony Peratt, who is usually quite definitive, does manage to provide a simple description of the procedure bereft of technical clutter:

"The simple pinch has a number of serious instabilities...The sausage...instability occurs periodically along the pinch where the magnetic pressure...becomes greater. This causes bulges to appear which result in even greater inward pressure between them. Ultimately, if the axial current is strong enough, the pinch can collapse into force-free magnetic plasmoids."²

According to Scott:

"These instabilities are dynamic effects that occur in intense Birkeland currents or arc discharges as found in plasma torches, z-pinched plasma filaments, or in high energy density electrical discharges. The instability takes on the shape of a column of axially symmetric toroids or spheroids that remain in a semi-stable state until disruption. During this state the column may be a source of intense x-rays whose intensity is greatly enhanced if two filaments are in interaction."³

These plasmoids, toroids, or spheroids, end up forming spirals around them⁴ and eventually "smoothen" out into linear filaments which themselves can, and do, take on remarkable symmetrical formations.

This is what seems to have befallen the columnar jet-like plasma emanating from the proto-Saturnian sun. The discharge from the Sun would have provided the necessary sudden jolt of current needed to destabilize proto-Saturn's columnar plasma, or Birkeland current, and send it rollicking through its series of instabilities. There is no need to point out that, on a cosmic scale, filling half of Earth's northern sky with its scintillating display, the various aspects of which would have taken time to metamorphose into each succeeding stereotype, the entire spectacle would have filled ancient man with awe.

¹ See here for instance W. Thornhill, *The Electric Universe* (Beaverton, Oregon, 1997), p. 21.

² A. L. Peratt, *Physics of the Plasma Universe* (N. Y., 1992), p. 70.

³ D. E. Scott, "Electrical Plasma" at <http://www.electric-cosmos.org/electricplasma.htm>

⁴ A. L. Peratt, *op. cit.*, p. 73.

How do we know that this transpired? *We know because the Cro-Magnons left us with specific visual representations of just such a series of events.*

THE PICTOGRAPHIC EVIDENCE

At this point I have to submit certain evidence which, at first glance, will be even more difficult to digest by those who have not been exposed to plasma experimentation than anything else so far presented. This is especially so because the evidence in question has not yet been given wide public exposure. Nor would any of this evidence have been available were it not for the diligence of Anthony Peratt. As it happened, however, back in 2000, Peratt came to the stunning realization that many of the figures left to us by our prehistoric ancestors bear a canny resemblance to the plasma instabilities with which he was personally involved and which, in fact, were named after him. It is of course understandable that, up to that time, being a plasma physicist, Peratt knew nothing about prehistoric pictographs. He was soon enough to learn.

This all came about when, at the urging of some colleagues, Peratt attended the World Conference sponsored by KRONIA Communications in September 2000 at which he gave a paper on plasma cosmology. During the private round table conference for the speakers that followed the public session, two amazing things transpired. The first was that Peratt got mildly interested in what those involved in the Saturn thesis were discussing, which, from an authority of Peratt's stature was as unexpected as it was heartily welcomed. The second is that Peratt himself—who was actually heard saying “I don't believe I'm doing this”—floored the attendees by illustrating aspects of plasma instabilities with which those involved in the reconstruction of the proto-Saturnian events were already familiar through ancient symbolism. Even so, to say that Peratt was there and then convinced of the validity of the Saturn thesis would be stretching it. Soon after, David Talbott, who was the organizer of the conference, e-mailed some illustrations to Peratt for his comments. As Peratt himself tells it:

“It was unreal. The pictures were those of an obscure instability in a plasma discharge. But the pictures were more pencil-like than photographic. It was hard to believe that someone outside the space-plasma community had knowledge of these. When I inquired further as to their source, I was told they were carved on rock. I immediately wanted to know where these rocks were stored. It was at that point that I found out that they were called petroglyphs and existed all over the world.”¹

The resemblance between prehistoric petroglyphs and plasma instabilities so intrigued Peratt that he, together with some interested volunteers, went out of his way in self-conducted field explorations to photograph as many of these depictions as he could find in America's south-western states. Before long he was collecting similar pictographs from other parts of the United States and elsewhere, even from as far afield as the Australian outback.

¹ *Idem*, as reported on the University of Pennsylvania Museum of Archaeology and Anthropology “News Release” in relation to the 2001 seminar titled “Celestial Catastrophes in Human Prehistory?”



Anthony L. Peratt
Photograph—2005—by the author.

The more he collected, the more he became convinced that what was recorded all over the world through these petroglyphs amounted to a chronological sequence of plasma instabilities which our primitive forebears could only have seen projected against the backdrop of the sky—a far-fetched hypothesis to be sure. To use his own words, however, Peratt came to the conclusion that “it was really quite simple.”¹ According to him: “Ancient people had recorded all the phases of a plasma discharge, a lightning stroke that must have been unprecedented in intensity and duration.”²

Peratt soon realized that, through computer processing, it would be possible to “make a movie of the phenomena with bits and pieces of petroglyphs from around the world in spite of the fact that they were often drawn as crude looking figures.”³ As it turned out, and was later reported, Peratt had “greatly underestimated the information carried on the rocks.”⁴

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

"Many parts of the hastily created movie 'stood still' in spite of the fact that the individual frames were photos taken a thousand miles apart. That is, they were exactly the same images or images having differences related to where on Earth the observer stood or [to] cultural perceptions."¹

How did he determine the line of sighting in order to ascertain the correct perspective of the phenomena from where "the observer stood"?

"[He did so by] digitally *recording many tens of thousands* of petroglyphs in the Southwest while noting their positions and orientations through global positioning satellites. The data was then processed on a large computer to look for similarities between the petroglyphs themselves as well as with other objects made by man thousands of years ago."²

In other words, not only are the same and/or related images carved on rock over most of the world, but, when strung together in the proper order they correlate into the correct sequence inherent in plasma instabilities. To Peratt, as now to others, there is no way that this could be interpreted as mere coincidence. The emerging verdict is that our forebears actually left us a pictorial compendium of the sequential events they saw portrayed against the sky.

Peratt disclosed some of these findings to a selective audience at the October 2001 seminar sponsored by the University of Pennsylvania Museum of Archaeology and Anthropology. Basing his findings on new high technology experimental research, he there argued that "numerous rock art designs...can be linked to the recording of a highly visible outer space event that occurred many millennia ago."³ As he there indicated, "many items of antiquity including petroglyphs...are interrelated by world-wide observations of an intense 'aurora' that may have lasted for centuries."⁴

All of this is not to say that *all* petroglyphs, or other ancient symbols, are identifiable as plasma instabilities. Neither can it be said that those which are so identifiable pertain to the same series of events. As we shall be indicating in future volumes of this series, some of these occurrences were actually repeated at a later time. But let us return to the set of circumstances we are here primarily concerned with and the visual representations left to us by the Cro-Magnons.

THE MAGDALENIAN PRIMACY

As has already been noted, there is nothing in all of Paleolithic art that is recognizably cosmic. This has been acknowledged by those who have made it their business to study archaeoastronomy. Thus, while Edwin Krupp attempted to discover a semblance of seasonal

¹ *Ibid.*

² *Ibid.* (emphasis added); see also *idem*, "Characteristics for the Occurrence of a High-Current Z-Pinch Aurora as Recorded in Antiquity," *Transactions on Plasma Science*, Vol. 31, No. 6 (2003).

³ See reference #49.

⁴ *Ibid.* (emphasis added).



So-called pendant from the Magdalenian culture of Saint-Marcel, France, depicting a columnar plasma instability. (Picture courtesy of the Musée des Antiquités Nationales, St. Germain-en-Laye.)

reference in Paleolithic art, he could only see “little celestial and topographic imagery” in all of it.¹ What little he saw, he did not say.

Nevertheless, my own statement above is conditional on the word “recognizably” because, to be sure, Paleolithic man was not entirely “silent” when it comes to celestial imagery. The few cosmic depictions that the Cro-Magnons left behind, however, are only recognizable to those who are familiar with plasma phenomena. The cosmic images these people left behind are specific visual representations of a series of instabilities that took place in the sustained Birkeland current that stretched between proto-Saturn and Earth.

We have noted that once a plasma column receives an additional jolt of current, it tends to pinch. The jolt of current which pinched proto-Saturn’s plasma column came directly from the Sun once its plasmasphere came in contact with proto-Saturn’s. In other words, the Sun discharged toward the proto-Saturnian system. The proto-Saturnian sun, together with its columnar axis, became temporarily overcharged. When axial currents are strong enough, these pinches, which can form one above the other, de-velop into a series of stacked plasmoids. These plasmoids then turn into toroids, or spheroids, which end up forming concentricities and/or spirals around them. “Experimenters will tell you that the usual number of pinches (or spheroids or toroids)

is between 8 and 10, e.g. 9,” Peratt informed this writer. “Many times all 9 spheroids are seen, most often only a few.”²

According to Peratt, three spheroids, with filamentation or flaring at the bottom, is not unusual.¹ What, then, happens to the other six? The answer is that “magnetic pressure flattens

¹ E. C. Krupp, *Skywatchers, Shamans & Kings* (N. Y., 1997), p. 124.

² A. L. Peratt to D. Cardona, private E-mail correspondence, July 22, 2003.

[them] like flapping pancakes.”² What then visually appears are slightly curved horizontal filamentations at the bottom of the three (or more or less) spheroids. Again according to Peratt, “these actually flap in time” and “can turn upwards or downwards.”³ The interesting thing here is that there are various pictographs around the world which depict a number of concentricities stacked above each other plus others which show a series of slightly curved, stacked horizontal lines. Just as they appear in laboratory experiments, some of these lines curve downward, others upward. As it happens, the earliest such example (shown opposite) that this writer has so far come across hails from the Magdalenian culture of Saint-Marcel in France. A mere 5.5 centimeters long, the object on which the depiction is engraved has been described as a pendant “with circular motifs,”⁴ which, given the uniqueness of the subject represented, is very understandable. When shown to Peratt, he had no trouble recognizing it for it what it is.⁵

Even so, had this been the only item from the Magdalenian culture that bears a close resemblance to a columnar plasma instability, I would have hesitated to include it in this work. But there is more. In fact it seems that the Magdalenians were so mesmerized by the instabilities they saw the polar column transform into, that they depicted just about the entire sequence—and this, no matter what criticisms will be leveled at it in the future, is surely too much to be relegated to coincidence.

Three other items from the same Magdalenian culture, but this time from Isturitz, also in France, continue the sequence of columnar disruption. Described as “bone or antler tools decorated with spiral patterns,”⁶ Peratt easily recognized them as patterns of instabilities in a plasma column which also appear “on a world-wide basis.”⁷ The first item (Fig. 1, on p. 270) shows the spheroids and spirals just beginning to separate and unravel. In sequence, this would follow the event depicted on the so-called pendant from Saint-Marcel. The second one (Fig. 2) continues to show the unraveling in which the spirals are now almost beyond recognition. The third (Fig. 3), which Peratt calls “the most complicated,” would have occurred “sometime after a long-lasting stability,” and involves “an intense symmetrical magnetic crush along the whole column.”⁸ Peratt thus described the depictions on the three items in question:

“Each column, or bone, represents one instant in time of the column instability development. Time changes are not shown on any one stick or bone.”⁹

Moreover, Peratt offered the additional information that the complex pattern depicted in the third object would have occurred “at a time appreciably greater than the time difference

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*

⁴ J. Jelínek, *The Pictorial Encyclopedia of the Evolution of Man* (London, 1975), pp. 435, 451.

⁵ A. L. Peratt, *loc. cit.*

⁶ J. Jelínek, *op. cit.*, p. 449.

⁷ A. L. Peratt to D. Cardona, private E-mail correspondence, June 28, 2003.

⁸ *Ibid.*

⁹ *Ibid.*



Fig. 1

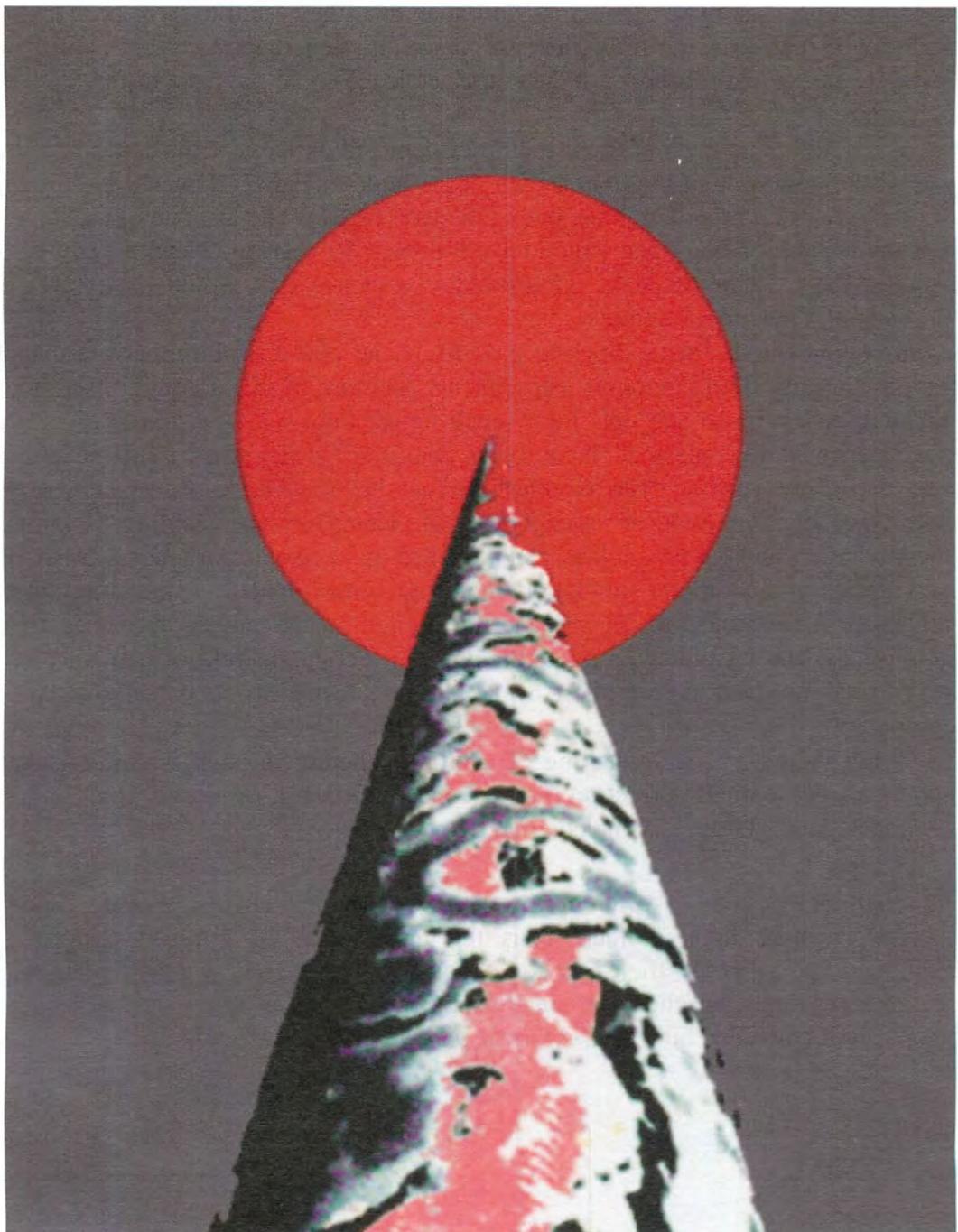


Fig. 2



Fig. 3

The three items from the Magdalenian culture discovered at Isturitz, France,
discussed in the text.



Simulation of proto-Saturn's jet-like polar column showing the magnetic crush of the original plasmoids. Compare with Fig. 3 opposite.
(Illustration by Richard M. Smith.)

between the [other two instabilities].”¹ He was astute enough to realize, without actually having been told, that these three items are “probably all of the same age,”² that is “all carved about the same time,”³ as in fact they are. More than that, they seem to have been carved by the same hand. If that turns out to be the case, it would strengthen my own belief that they were carved by an eye-witness and that the entire sequence could not have lasted more than a person’s lifetime.

When asked how long each of the instabilities depicted on these items could have lasted, Peratt was of the opinion that the item shown in the middle (Fig. 2) depicted the instability-event 10 years after that recorded in the one to the left (Fig. 1). The last one of the three (Fig. 3), depicts the instability-event that would have followed 50 years after the one shown in the middle.⁴ This, then, again bespeaks an instability-sequence that would have taken place within the span of a person’s lifetime.

The time taken for the instabilities to pass from one phase to the other are calculated through the scaling up from laboratory experiments. Because of this, Peratt himself does not accept this author’s surmise and opts for a much longer time-span—even centuries.⁵ As he explains, experimentally, plasmas have been found to scale over fourteen orders of magnitude. Earlier, Alfvén had even hypothesized that they scale up to twenty-eight orders of magnitude. Once the amplitude of an experimental plasma, or its instability, is known, its size in the laboratory and the time it lasts can be scaled up to cosmic parameters. Also, once a criterion is altered in a computer simulation, the programmed model has the ability to adjust all the others. If, for instance, the magnitude, the strength of the current, the magnetic field, etc., of a plasma is known and entered into the program’s code, the other parameters, such as the length of time involved in each phase of the plasma’s instability sequence, will be output by the computer.⁶

There *might*, however, be something of a pitfall inherent in such scaling. As Warren Carey admonished, “a small correction may become significant, even overwhelming, when length *or time* becomes large.”⁷ As he continues:

“Where parameters involve different powers of size *or time*, change of scale affects one property more than another. Thus the most successful airplane design, if faithfully copied at twice the size, could not fly. The weight would have been increased eight times, but the wing area to support it only four times. A double-size airplane can of course be built, *but not to the same proportions.*”⁸

¹ *Ibid.*, June 29, 2003.

² *Ibid.*

³ *Ibid.*, July 8, 2003.

⁴ *Ibid.*, July 3, 2003.

⁵ *Ibid.*

⁶ *Ibid.*, July 8, 2003.

⁷ S. W. Carey, *Theories of the Earth and Universe* (Stanford, California, 1988), p. 210 (emphasis added).

⁸ *Ibid.* (emphasis added).

Peratt, on the other hand, has warned this writer that, while Carey is correct in his particular example, the same does not necessarily apply to plasma scalability¹—note well taken. And yet, as I have already pointed out,² Hannes Alfvén had stressed that:

“Following Birkeland, the first laboratory experiments with reference to cosmic physics had the character of *scale-model experiments*...Such investigations demonstrated, however, that *no real scaling of cosmic phenomena down to laboratory size is possible*, partly because of the large number of parameters involved which obey different scaling laws.”³

And:

“There are good reasons to believe that in several respects, the basic properties of laboratory plasmas and space plasmas are the same. [However] as different plasma parameters obey different scaling laws, translation from one region to another is often difficult.”⁴

Moreover, Alfvén cautioned those who were to follow him to give precedence to plasma behavior over that of scaling. “Hence,” he wrote, “laboratory experiments should aim at clarifying a number of basic phenomena of importance in cosmic physics rather than trying to reproduce a scaled-down version of the cosmic example.”⁵

Needless to say, this does not imply that Peratt is necessarily wrong. It merely indicates that in this, as in other matters, great caution should



Decorated point—Epipaleolithic period—north-west Germany

¹ A. L. Peratt to D. Cardona, private E-mail correspondence, November 30, 2003 NOTE: For a more detailed objection, see *idem*, “Plasma Scalability,” *AEON* VI:6 (October 2005), pp. 9-10.

² D. Cardona in reply to the above, p. 10.

³ H. Alfvén & G. Arrhenius, *Evolution of the Solar System* (Washington, D.C., 1976), p. 249 (first emphasis as given, all others added).

⁴ H. Alfvén, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 4 (emphasis added).

⁵ H. Alfvén & G. Arrhenius, *loc. cit.*, (emphasis added).

be exercised. Judging by the nature of the Magdalenian items discussed, to say nothing of the demands of the mytho-historical record itself, I must opt for a much shorter time for the instability sequence discussed above. After all, even Peratt's own calculations of 10 and 50 years, as noted, would seem to point in that direction.

THE MIRROR IMAGE

Meanwhile, there is yet one more item that fits the sequence being discussed. This one comes from the Epipaleolithic period, which is intermediate between the Paleolithic and Neolithic, and thus includes the Magdalenian culture with which we are concerned.¹ Discovered in north-west Germany, the item, described merely as a decorated point,² depicts a design that was to become quite prevalent in later ages. Peratt was not quite sure whether this type of instability should follow the one depicted in Fig. 2 or Fig. 3 of the Isturitz trio we have just examined.³

Even in face of all the above, what is depicted on this particular item seems much too neat and symmetrically uniform to have represented an actual plasma instability the likes of which are necessarily ephemeral. Be it understood, however, that while these instabilities are transitory, some of their displayed aspects can be sustained for long periods of time. Not only that, but, as seen in laboratory experiments, quite a few of the patterns they form look almost artificial. One thing to keep in mind is that, eventually, plasma instabilities tend to result in repetitive linear configurations. And, to be sure, the pattern depicted on the Magdalenian item from Germany shown on page 273 is one that often results in experimental instabilities.

While, at the time of this writing, Peratt hesitated in committing himself as to whether this particular instability would have preceded or followed the one depicted in Fig. 3 on page 270, I am of the opinion that it would have followed it. My reason for this is that if one looks closely at selective portions of Fig. 3, one can see that the pattern depicted on the German item under consideration is just beginning to take shape. And, as if to compliment this situation, curlicues similar to those depicted on Fig. 3 appear at both the top and bottom of the German item. This seems to indicate a transitional phase between the two instabilities.

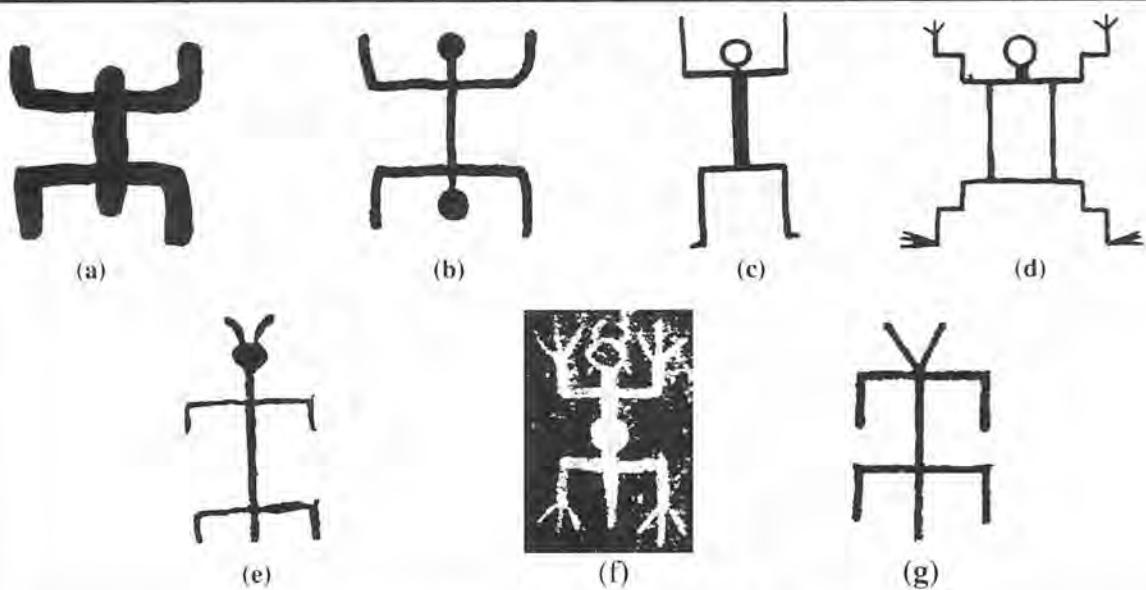
This particular image impressed ancient man so much that, perhaps because it was to reappear at a later time, he continued to reproduce it on various surfaces through the coming ages. Interpreting it as a ladder to heaven, and even as an assemblage of men standing, or piled up, one on top of the other—both of which, to some extent, the pattern resembles—it was to gain special religious significance.

In later ages, separate constituents of the pattern were separated into individual representations which were then interpreted as various items—a person (especially in a praying position), a dragonfly, a frog, a water skate, even a cloud (with its reflection in the water)—to which, in the eye of primitive man, the image bore a resemblance. Further, because the isolated constituents appear the same whether viewed normally or upside down,

¹ J. Jelínek, *op. cit.*, pp. 424, 448.

² *Ibid.*, p. 448.

³ A. L. Peratt to D. Cardona, private E-mail correspondence, July 7, 2003.



Examples of the "squatter" or "mirror image."

Separate constituents of the pattern depicted on the decorated point from the Epipaleolithic period shown on previous page as reproduced at a later time.

- (6) from Canyon de Chelly, Arizona; (b) from Canyon del Muerto, Arizona; (c) "praying person," from Mesa Verde National Park, Colorado; (d) anthropomorphosed cloud with reflection in water, from a locality near Springville, Arizona; (e) "dragonfly" from Hopi Mesa, Arizona; (f) "frog" or "lizard" from Chaco Canyon, New Mexico; (g) "water skate" from Hopi kachina mask design.

they have become known among those who study ancient pictographs as "mirror images."¹ Others refer to the separate individual image as the "squatter." The same image was also given prominence in the later Neolithic shrine at Çatal Hüyük in present-day Turkey.

Of special interest to our thesis is the fact that this very same image was adopted by the Dogon of Mali in west Africa as one of their most important religious symbols. They incorporated it both in one of their principal ceremonial masks,² as also on their constructions.³ The image itself is claimed to represent their god Amma,⁴ the creator who had existed during the "original darkness,"⁵ who had created the heavens,⁶ and organized the "world" out of chaos.⁷ The reader should therefore have no difficulty in recognizing these characteristics as

¹ See here, for instance, A. Patterson, *A Field Guide to Rock Art Symbols of the Greater Southwest* (Boulder, Colorado, 1992), p. 146.

² R. K. G. Temple, *The Sirius Mystery* (N. Y., 1976), p. 37.

³ E. C. Krupp, *op. cit.*, p. 165.

⁴ R. K. G. Temple, *loc. cit.*

⁵ M. Griaule & G. Dieterlen, "Un Système Soudanais de Sirius," *Journal de la Société des Africainistes*, XX:1 (1950), p. 274.

⁶ *Idem*, *Le Renard Pâle* (Paris, 1965), p. 163.

⁷ *Idem*, see reference #89, Note #14.



The "squatter/mirror image" as water
skate twice reproduced on a Hopi
kachina doll.

interest as indicated by its endorsement and publication of one of Alfvén's major works, written in co-authorship with Gustaf Arrhenius.⁴

¹ E. C. Krupp, *op. cit.*, pp. 163-164.

² H. O. G. Alfvén, "Cosmology in the Plasma Universe: An Introductory Exposition," *IEEE Transactions on Plasma Science*, Vol.18, No.1 (February 1990), p. 5.

³ *Ibid.*, p. 6.

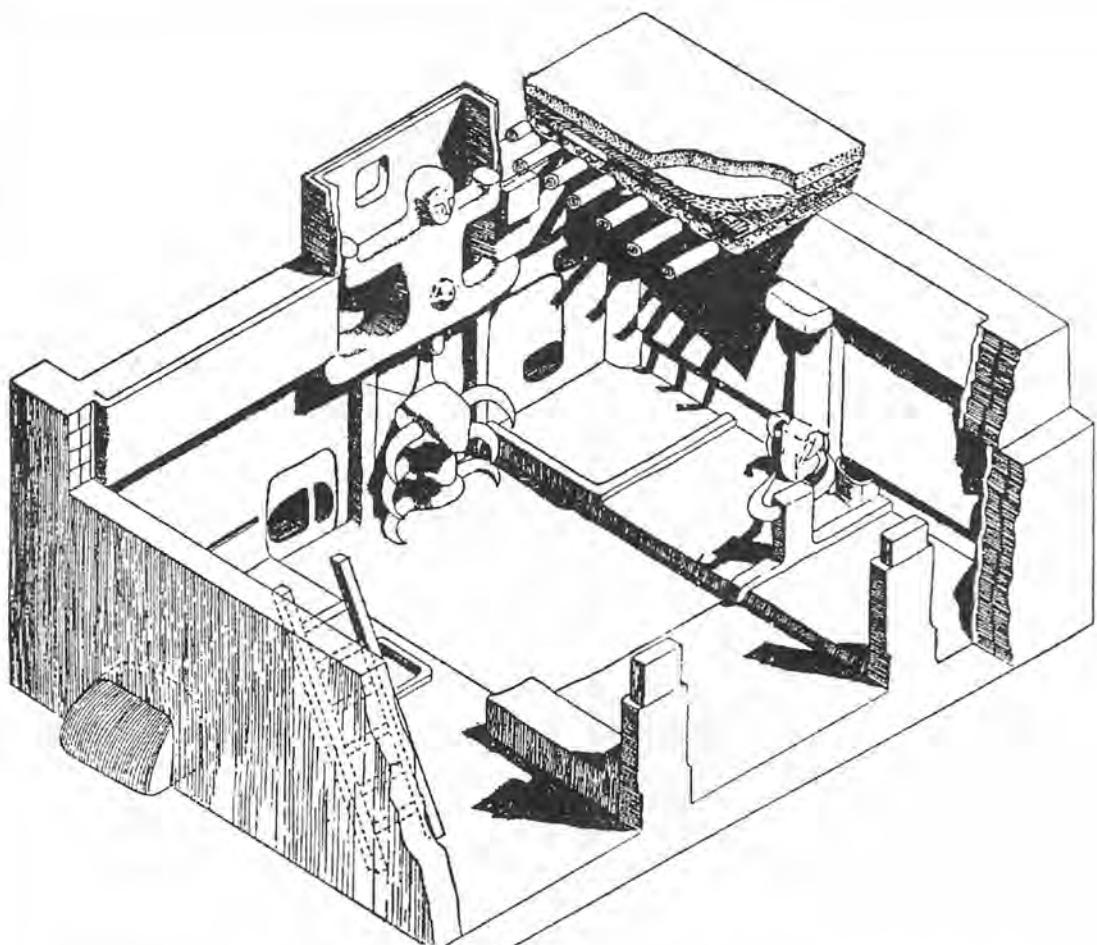
⁴ H. Alfvén & G. Arrhenius, *Evolution of the Solar System* (Washington, D.C., 1976).

belonging to the Saturnian deity. Like other nations they, too, retained a memory of the world axis that once reached from Earth and pointed toward what is now the Pole Star. This axis was known to them as Amma's Pillar.¹

THE PLASMA EXPERIENCE

Most anthropologists and archaeologists have no idea that the pictographs we have been examining originated as plasma instabilities in a gargantuan column of scintillating light that stretched between the proto-Saturnian sun and our world. And here the reader, too, may harbor doubt as to the correct interpretation of these images. This is understandable because, as Hannes Alfvén noted, while plasma phenomena "have been known for decades (or even more than a century)...they have almost systematically been ignored in cosmic physics."² Until recently, these studies were conducted mainly in Scandinavian countries. As Alfvén reported in 1990: "The Swedish Viking mission has continued in the Scandinavian tradition of studying the properties of the plasma which fills the universe from the small-scale phenomena in the laboratory to the large-scale phenomena in galactic and intergalactic space."³

At present, the United States is also involved, mainly at Los Alamos, New Mexico, for other than astrophysical reasons. NASA, too, has shown some



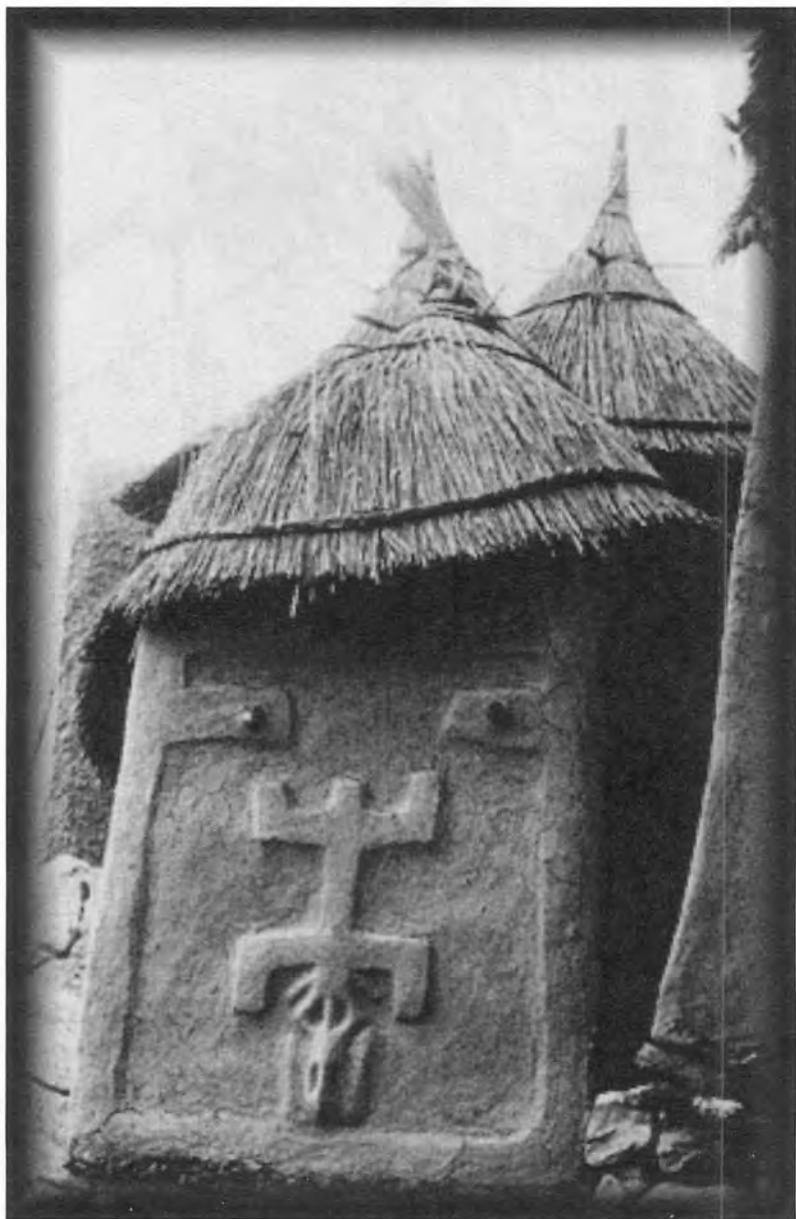
One of the Neolithic shrines at Çatal Hüyük in present-day Turkey, which shows the “squatter/mirror image” prominently displayed on one of its walls.
(Illustration after J. Mellaart.)

Like Peratt, one of the specifics of plasma that Alfvén stressed is that “pinch effects are of decisive importance in how cosmic plasma evolves.”¹ And, also like Peratt, he emphasized that, under certain conditions, kink instabilities can cause the current to form spirals.²

Now while the patterns we have been studying have been compared to plasma instabilities *as they occur in laboratory experiments*, it must be kept in mind that, *except perhaps for the time element*—re which see above—the “same basic laws of plasma physics hold everywhere...from laboratory and magnetospheric heliospheric plasmas out to interstellar and intergalactic

¹ H. O. G. Alfvén, see reference # 93, p. 6.

² *Idem*, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 88.



The “squatter/mirror image” as the *kanaga* mask representing the god Amma, portrayed in relief on the wall of a Dogon granary.
(Photograph by P. C. Keller, courtesy of the Bowers Museum of Cultural Art.)

plasmas."¹ It is silly to have to remind the reader that the Magdalenians could not have witnessed plasma experiments in a laboratory. But then, the only other alternative is exactly what Peratt himself was forced to conclude when he claimed that ancient man could only have seen these archetypes projected against the celestial screen. Thus, after ages of familiar sameness, a series of marvels proceeded to modify what had once been a basic image in the sky. Not only had heaven been transformed, but the transmutation was gloriously flamboyant.

We will never be able to comprehend completely how this resplendent change in the sky affected our primitive forebears. The scintillating light that would have accompanied the ever-changing sequence of instabilities, to say nothing of the changes themselves, must have filled them with awe and—who knows?—a touch of uneasiness. They would not have known what was really happening. One can only guess at what went on through their minds. But questions *must* have been asked. What was *happening* to their sun? What was it *doing*? And *why*? There *is* one thing for certain that can be said, and it is this: If our ancient ancestors had never done so before, they would surely have started to think of the proto-Saturnian image in their sky as having been endowed with life.

The seeds for the concept of deity had been irrevocably sown.

THE RETRACTION

What appears to have transpired next does not seem to have a direct analogy in laboratory plasma experiments, but, as we shall soon see, there are indications of something similar in galactic, as well as interplanetary, space. In order to reconstruct this ensuing phase, however, we must first return to the mytho historical record.

There was a general belief among the ancient Egyptians that, at one time, Ra cut off his own phallus.² Since, as we have already seen, the phallus of Ra was actually the plasma column or *axis mundi* we have been analyzing, what this self-castration seems to indicate is a detachment of that *axis*. This castration motif is one that recurs often enough in myth—although, to be sure, some of it refers to a much later, but similar, event.

Nevertheless there is more than that because, in this particular instance, the loss of the celestial phallus seems to have been something more than a simple severance of the column. As we noted on an earlier page, Ra was also said to have had “union with himself.”³ Visually, the only way in which Ra, as the proto-Saturnian sun, could have been seen to have union with himself is if the columnar axis was seen to retract itself straight up into the proto-Saturnian orb. In this manner, the proto-Saturnian sun would have been visualized as having been impregnated by its own phallic appendage.

This assumption is lent strength by the well-known Greek myth in which Kronos/Saturn castrates his father Ouranos. The earliest reference to this myth is in Hesiod’s *Theogony*. It was, however, also utilized by Philo Byblius, who based his report on that of the Phoenician Sanchoniathon and was quoted by Eusebius of Caesarea. In his genealogy of the Phoenician

¹ *Ibid.*, pp. 110, 152; *idem*, reference # 93, *loc. cit.*

² E. A. W. Budge, *An Egyptian Hieroglyphic Dictionary*, Vol. I (N. Y., 1920/1978), p. 489.

³ R. Van Over, *Sun Songs: Creation Myths from Around the World* (N. Y., 1980), p. 283.

deities, Philo also stressed the emasculation of Ouranos by Kronos, whom he also alluded to as Elus.¹ That Ouranos, whom the Romans rendered Uranus, was the same as Saturn we know from the same Sanchoniathon who directly equated Ouranos with Kronos/Elus.² The belief that Saturn was his own father—the reason behind which will be explored in a future volume—is not unique to Greek mythology. But this unity of father and son makes it evident that the emasculation of Ouranos by Kronos was in actuality a self-castration.

Hesiod then informs us that the castrated genitals of Ouranos were thrown “into the stormy sea” where they were surrounded with “white foam.”³ This “stormy sea” has normally been understood as a *terrestrial* one. But, as we have shown both in this work and our previous one,⁴ the mythological sea was celestial in nature. This is additionally indicated by the “white foam” which was said to surround the fallen genitals since foam was one of the most descriptive qualities of the celestial waters. It therefore becomes obvious that Ouranos’ castrated genitals did not fall down, but *up*—straight up into proto-Saturn’s circumstellar disk.

Further evidence for the legitimacy of this postulate comes from a later near-identical event. At this point I will not be revealing too much of what was still to come by stating that the *axis mundi* was to re-appear not long after its disappearance only to finally suffer the same fate. This later but near-identical event, as detailed in the *Shiva Purana*, has Rudra agreeing to break off his own *linga*, where it is unambiguously claimed that the severed member “went to the very sky.”⁵ And if in this *later* event the *axis* was seen to retract itself into heaven, there is every reason to believe that it would have likewise done so at the earlier occurrence with which we are presently concerned as, in fact, the record itself intimates.

Let not the reader wonder at the lack of specificity in the myths discussed above concerning the retraction of the *axis* for, after all, we are here attempting to analyze the *very first* celestial occurrence that ancient man was to retain a memory of. In view of what was next to follow, to say nothing of the sheer antiquity of the event, the amazing fact is that he remembered it at all. Nevertheless, while granting the somewhat circuitous nature of this evidence, we must now see if astrophysics has anything to offer in support of it.

INTENSE CHARGED PARTICLE BEAM DISPERSALS

Let me start by stating right off the bat that, much like our posited proto-Saturnian *axis*, these misnamed cosmic jets—which are better termed relativistic charged particle beam plasmas—are neither necessarily stable nor necessarily permanent. In fact, as Halton Arp found out to his satisfaction, cosmic jets are transitory.⁶ When it comes to galaxies, Jayant Narlikar and P. K. Das showed in 1980 that “as particles in the ejected matter gain mass, they slow

¹ Eusebii Pamphili, *Evangelicae Praeparationis*, I: x: 38b.

² A. Hislop, *The Two Babylons* (London, 1972), pp. 193-194; see also D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 168-169.

³ Hesiod, *Theogony*, 178-208.

⁴ See here especially D. Cardona, *op. cit.*, pp. 267-270.

⁵ W. D. O’Flaherty, *Hindu Myths* (Harmondsworth, 1976), p. 140.

⁶ H. Arp, *Quasars, Redshifts and Controversies* (Berkeley, CA, 1987), p. 49.

down in order to conserve momentum." In other words, they decelerate *and even come to a halt.*¹ As Arp added: "The Narlikar-Das calculations apply to the most favorable case for escape from the ejecting galaxy" and this material exits "along the minor axis" which is the axis of rotation.² We are here, therefore, speaking of galactic jets. And if galactic jets can decelerate, and even come to a halt, so, therefore, can less energetic stellar and sub-stellar jets.

The deceleration and halting of jets is not the same as severance and/or retraction. But consider next the jets associated with the system known as XTE J1550-564 which were "caught...in the process" of forming. First observed in 1998, one of these jets began to fade.³ "Watching these jets *slow down and disappear*," Stephane Corbel reported, "is like watching a time-lapse movie of the rise and fall of the Bronze Age."⁴ To astrophysicist Philip Kaaret, this fading "poses a puzzle" because the "simple model for jets doesn't explain" why this should occur.⁵ On the other hand, we are here talking of opposing axial jets calculated to be moving "at nearly half the speed of light" said to be emanating from a so-called stellar-mass black hole.⁶ But if plasma phenomena can be scaled up from laboratory magnitudes to galactic ones, it can just as easily be scaled down from galactic magnitudes to planetary ones. A similar instance of a fading cosmic jet is the one emanating from M87. As Peratt disclosed in 1992:

"Comparison of the integrated magnitude of the jet in M87 over the period 1934-1980 shows that the jet is variable and has been fading, more or less uniformly, by about 0.8 mag per decade between 1964 and 1980. The data imply that over the period 1952-1980, the total jet intensity fell by at least 2.5 mag. Comparisons of isophotes taken in 1964 and 1979 show no obvious differences in overall shape, apart from effects of variation and noise. This indicates that the fading has affected the whole channel uniformly since 1964..."⁷

The fading of jets is exemplified by our present Sun. The present poleward fields emanating from our own stellar primary are so relatively weak that they operate in the dark mode. It is, however, doubtful that they always did.

Granted that the fading of a cosmic jet is still not the same as a retraction, there are other indications that jets *do* in fact retract. Much closer to home and on a much smaller scale, we encounter jet-like plasma in cometary tails. It has now been conceded for some time that electricity and magnetism are central to the understanding of what a comet really is.⁸ The sunward spikes that some comets display have also been understood as electrical dis-

¹ *Idem, Seeing Red: Redshifts, Cosmology and Academic Science* (Montreal, 1998), p. 231.

² *Ibid.*

³ P. L. Gray, "Jets from a Black Hole," *Astronomy* (January 2003), p. 28.

⁴ *Ibid.*, p. 26 (emphasis added).

⁵ *Ibid.*, p. 28.

⁶ *Ibid.*

⁷ A. L. Peratt, *Physics of the Plasma Universe* (N. Y., 1992), p. 245.

⁸ C. Sagan & A. Druyan, *Comet* (N. Y., 1985), p. 168.

charges¹—and would not these spikes, in conjunction with the tails, make for a similar situation to a bipolar flow as in galactic jets? Like stellar jets, cometary tails are now known to be composed of plasma.² More than that, comets are known to shed their tails as Comet Morehouse did in 1908.³ Nor is Comet Morehouse the only comet to have disposed of its tail. In fact quite a few comets have been seen to cast off their tail only to grow another.⁴

“Sometimes the entire tail disconnects itself from the nucleus and, fading, drifts slowly back until it disappears entirely. Typically, the nucleus forms a new tail after a disconnection event, and the old and the new tail may interact or even become briefly intertwined.”⁵

“The magnetism embedded in the plasma of the solar wind [Nigel Calder explains] maintains the same direction (magnetic north pole versus south pole) across a wide swathe of interplanetary space, where a comet might be plying. But as the Sun slowly spins it brings that sector of the Solar System under fire with plasma magnetised in the opposite direction. When a comet and its plasma have adjusted comfortably to the prevailing magnetism of the solar wind, encountering the zone of reversed magnetism causes electromagnetic chaos that can decouple the plasma tail.”⁶

The above still fails to constitute a retraction. But consider next: When a comet moves away from the relative vicinity of the Sun, its tail *does* get shortened until it is no more. And this *is* a retraction. This transpires because the further out from the Sun, the weaker the solar wind becomes. At least that is the most accepted version of the case. Those who favor a purely electric mechanism supply an entirely different scenario. As Wallace Thornhill claims:

“The ability of a comet to entrain a huge coma of gas millions of kilometers across, cannot be explained in gravitational terms. The acceleration of the plasma tail away from the Sun is not explained by light pressure [i.e., the pressure of light] or the solar wind.”⁷

According to Thornhill, as well as others: “A cometary display is due to the rapidly increasing electrical stress as a charged body closes in on the Sun.”⁸ In this case, the shortening and eventual retraction of a cometary tail would be due to the *lessening* of this electrical

¹ J. M. Mc Canney, “The Nature and Origin of Comets and the Evolution of Celestial Bodies,” *KRONOS* IX:1 (Fall 1983), p. 22.

² N. Calder, *The Comet is Coming* (N. Y., 1980), pp. 76, 81, 85; C. Sagan & A. Druyan, *op. cit.*, p. 170; T. Dickinson, “The Seeds of Life,” *Equinox* (July 1997), p. 65.

³ C. Sagan & A. Druyan, *op. cit.*, p. 169; N. Calder, *op. cit.*, p. 79.

⁴ *Ibid.*, p. 80.

⁵ C. Sagan & A. Druyan, *op. cit.*, p. 170.

⁶ N. Calder, *op. cit.*, pp. 80-81.

⁷ W. Thornhill, *The Electric Universe* (CD-Rom by Holoscience, 1999).

⁸ *Ibid.*

stress as the comet withdraws from the near vicinity of the Sun. Visually, it would then appear as if the nucleus was swallowing its own tail or—dare I say so?—as if the tail was impregnating the nucleus.

While proto-Saturn could not exactly be described as having been a giant comet, overall it did resemble one. Like a giant comet, its proto-planetary orb would have acted as a nucleus, with its axial Birkeland column acting as its tail. Nor was this analogy lost on the ancients, although it would have occurred to them much later when comets became common in the sky. In fact, one of Shiva's epithets is Mahaketuh,¹ which translates as "Great Comet" (from *maha*, "great," and *ketuh*, "comet")²

I do not want to stretch analogies, but the tornadic nature of proto-Saturn's *axis mundi* brings one more to mind. The electrical activity inherent in tornadoes is not well understood. A recent hypothesis claims that tornadoes may be formed when thunderstorms pass over positively charged oil deposits underground.³ But, again, there is no general consensus on this. A more believable explanation is that a tornado is a "form of atmospheric discharge."⁴ Thornhill thus describes the phenomenon:

"Meteorologists are not sure how tornadoes form but they do know that they are often associated with severe electrical storms. The key to understanding tornadoes is that they are the result of rapidly rotating electric charge...The result is that enormously powerful electromagnetic forces are in control of the tornado. The result has been called a 'charged sheath vortex'."⁵

Of related interest are the so-called dust devils sometimes seen on the surface of Mars. As Thornhill explains, these dust devils are really tornadoes that dwarf their terrestrial counterparts. More importantly, while they are an atmospheric electric phenomenon, they show quite clearly that clouds are not required for their generation.⁶ In effect, despite its cloudy outer garment, according to Thornhill, a tornado is a rotating plasma cylinder.⁷ In this respect, if in no other, it is not much different from proto-Saturn's polar *axis*. A tornado's powerful effects, Thornhill goes on, "are due to the fact that the charged particles within the cylinder are moving at meters per second."⁸

This is lent credibility by the mysterious lights that are often seen accompanying tornadoes which have been described by observers as "a terrific glow of light," a "flame-like flare," and as "fire up near the top of the funnel" which "looked like a child's Fourth of July

¹ V. S. Apte, *The Practical Sanskrit-English Dictionary* (Delhi, 1965), p. 749.

² *Ibid.*, p. 373.

³ *Science Frontiers* (May-June 2001), p. 3.

⁴ W. Thornhill at www.holoscience.com/news.php?article=s9ke93mf (August 17, 2003).

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Idem* to D. Cardona, private E-mail communication, August 18, 2003.

⁸ *Ibid.*



The fury of a tornado, following which the funnel retracts back into the sky.
(Photograph by the National Oceanic and Atmospheric Administration.)

pinwheel.”¹ In other cases vertical shafts of light like those from a searchlight were seen “darting around,”² while another was described as “an enormous column of fire.”³

Ball lightning, which itself is plasma, is also often seen accompanying tornadoes, like the one which touched down in Louisville, Kentucky, in March, 1890, where the phenomena was described as “numerous balls of living fire.”⁴ Similarly, on July 9, 1932, a tornado touched down near Rock Rapids, Iowa, from which “a fiery stream poured like water through a sieve, breaking into spheres of irregular shape as they descended.”⁵

¹ B. Vonnegut, “Luminosity Accompanying St. Louis Tornado—February 10, 1959,” *Monthly Weather Review* (February 1959), p. 64.

² J. Weyer & B. Vonnegut, “Luminous Phenomena in Nocturnal Tornadoes,” *Science* (September 9, 1966), pp. 1213-1220.

³ *The Fortean Society Magazine* (Spring 1944), p. 12; see also R. N. Shepard, *et al.*, “Tornadoes: Puzzling Phenomena and Photographs,” *Science* (January 6, 1967), p. 27 and (February 24, 1967), p. 1037.

⁴ Anonymous, “Weird Phantoms of the Air,” *Popular Mechanics* (December 1927), pp. 979-982.

⁵ J. C. Jensen, “Ball Lightning,” *Scientific Monthly* (August 1933), pp. 190-192.

One tornado of special interest was observed by a student attending the Army Weather School at Chanute Field, Miami, Florida, on June 17, 1959. What this witness first saw was not even a tornado but a ray "that looked like a searchlight beam" extending out of the cloud cover. No turbulence was evident in this beam. Other passersby stopped to stare at it.¹

"Then abruptly the ray was instantly replaced by a normal tornado funnel. No transition stage was noted. The funnel *did not* descend from the cloud layer. It appeared over all, *in situ*."²

These are descriptions of plasma phenomena. The point I wish to make, however, is that tornadoes, too, are known to retract their spouts once their fury has been spent. It cannot therefore be rightly claimed that jet-like extensions of plasma are not capable of retraction.

It still, however, needs to be asked: What would have caused the retraction of proto-Saturn's axial column?

BACKLASH

Readers might have already noticed what may have seemed like a discrepancy between the transfer of charge as postulated by Ralph Juergens and Donald Scott. As we have seen, Juergens claimed that the slowly approaching Sun would have "stolen" proto-Saturn's "fire." Scott, on the other hand, posited that the higher voltage body, that is the Sun, would have thrown electric charge *toward* the lower voltage body, that is proto-Saturn. Was Juergens, then, wrong? Not really. And neither is Scott. But let us first take another brief look at plasma physics. As Alfvén noted:

"From *in situ* space observations we know that there are current layers in space which separate space into regions with different magnetization, different temperatures and densities, and even different chemical compositions. Thus it has been found that space plasma has a tendency towards a cellular structure."³

Examples of such plasma separations are given by Alfvén and include "the magnetopause and magnetotail sheets, the heliospheric equatorial sheet...and similar sheaths in the magnetospheres of Jupiter, Saturn, and Venus and probably sheets in the cometary tails also."⁴ But, most importantly:

"These sheets are caused by electric surface currents. They are sometimes very thin...*It is almost impossible to detect them from a distance*. A spacecraft usually sees no indication of such a sheet *until it actually passes through it*."⁵

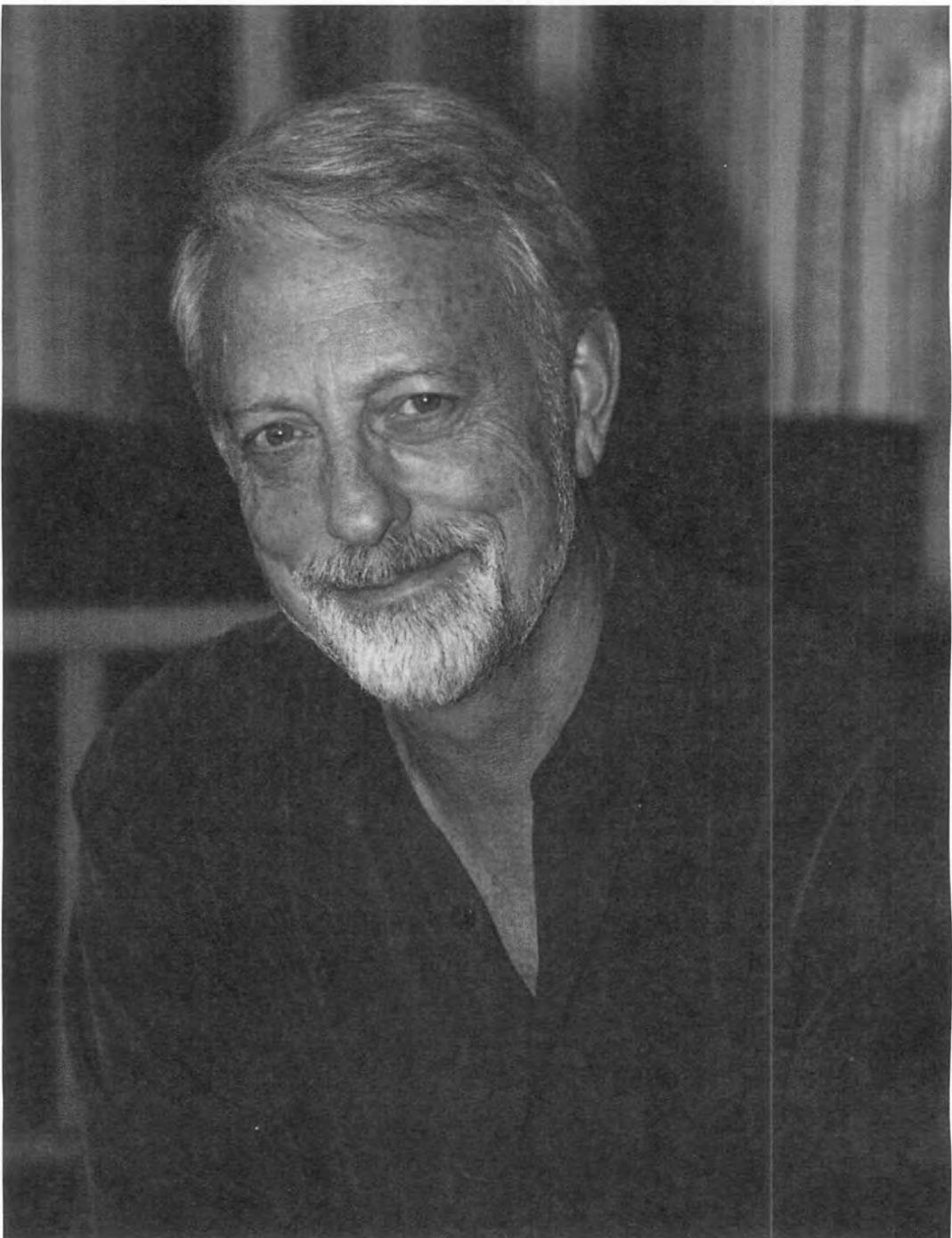
¹ J. Weyer & B. Vonnegut, *loc. cit.*

² *Ibid.* (emphasis as given).

³ H. O. G. Alfvén, "Cosmology in the Plasma Universe: An Introductory Exposition," *IEEE Transactions on Plasma Science* 18:1 (February 1990), p. 6.

⁴ *Idem*, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 138.

⁵ *Ibid.* (emphasis added).



Wallace Thornhill
(Photograph—2005—by the author.)

This is precisely what Scott means when he says, as he often does, that plasmaspheres do not “see” each other until they make contact. He has even indicated that, on contact, the approaching plasmasphere might very well bounce before merging with another such as the Sun’s heliosphere.¹ And this, too, was intimated by Alfvén in his claim that when a plasma approaches an obstacle, such as the heliopause, which is the physical boundary of the heliosphere, it is stopped and deviated. In this case, the approaching plasmasphere actually decelerates, bringing it almost to a rest in front of the heliopause and it must then be re-accelerated sideways. This transpires not directly by the heliopause, “but by the electric field it generates in the approaching plasma.”² This accelerated sideways motion must then be added to proto-Saturn’s spiraling orbit around the “approaching” Sun’s extended axis, which makes it very difficult for those who would want to plot proto-Saturn’s approach toward the Sun. It can also be seen that the capture of a body encased within a plasmasphere by another like-body is not a simple procedure.³ Thornhill, for instance, knew quite well that:

“Subsequent early crossings of the solar wind plasma sheet would induce additional episodes of extraordinary electrical activity until the electrical differences were reduced. The passage of proto-Saturn...across the heliopause boundary would not have been a once-only event, since the heliopause is not a stationary interface. Just as spacecraft passing behind Jupiter or Saturn today may repeatedly cross the ‘magnetotail’ of the planet as the tail ‘flaps’ in the solar wind, so proto-Saturn may have crossed the Sun’s electrical boundary more than once, [and] each crossing would have caused flaring and an acceleration by proto-Saturn toward the Sun...”⁴

Devoid of complications which we may never be able to resolve in full, the following, then, is what seems to have transpired:

On first contact between the two plasmaspheres, the Sun would have discharged toward proto-Saturn, much as Scott adduced. This sudden jolt would have transferred additional charge to the proto-Saturnian orb which would have passed on a portion of it to its jet-like columnar plasma extension. The plasma column would then have been pinched and sent through a series of instabilities. At the same time, proto-Saturn’s plasmasphere would have brushed off the Sun’s heliopause and possibly induced to change its direction. On second contact, proto-Saturn would have rid itself of more of this charge by ejecting back into the Sun’s *outer*, lower voltage plasma. As Juergens rightly noted:

“Suddenly, Saturn finds itself much too highly charged for its altered environment. How otherwise end such embarrassment *than by shedding excess charge in a mighty explosion?*”⁵

¹ D. E. Scott to D. Cardona, verbal communication, July 20, 2003.

² H. O. G. Alfvén, *op. cit.*, p. 68.

³ Those interested in the detailed electrical interactions of such a contact should consult the source quoted in *ibid.*

⁴ W. Thornhill, “The Electric Saturnian System,” *AEON* VI:1 (February 2001), p. 39.

⁵ R. E. Juergens, *loc. cit.* (emphasis added).

It was in this manner, according to Juergens, that the Sun could be said to have stolen proto-Saturn's "fire."

It is also possible that the excess energy received by the jet-like columnar plasma would have itself re-discharged to the proto-Saturnian orb. This additional backlash from the columnar axis is actually lent credibility by what has recently been discovered concerning at least one cause for stellar blow-outs. This came to light with the occurrence of the supernova, dubbed 1987A, that took place in February 1987. The following ten years of research directed at the rapidly expanding remnant of this stellar explosion ended up revolutionizing astrophysicists' understanding of the events that *precede* these violent flares. Where it was once believed that ejecta from supernovae should expand symmetrically, the ejecta from SN1987A did nothing of the sort. Instead, whether consisting of actual ejecta or not, the star formed a series of rings—three in all—only one of which was centered on the remnant.¹ As reported by William Shomaker: "The latest Hubble observations of 1987A indicate that a bipolar, jet-like explosion—oriented perpendicular to the easily seen rings—likely produced the unusual geometry of the famous remnant."²

We will set aside whether astrophysicists, most of whom still shy away from plasma physics, have gotten the detailed mechanics of such a "bipolar, jet-like explosion" right. In time, they will definitely be able to refine their theories. And, to be sure, computer models of supernovae which take nuclear physics and hydrodynamics into account, fail to flare up.³ Besides, enough evidence exists, especially through the broadening of their spectral lines, indicating that novae and supernovae are directly associated with electric discharges.⁴ What is of importance is that evidence now suggests that "jets are able to funnel vast quantities of energy...enough energy to trigger the supernova explosion," and that "the observations of 1987A consistently support the new jet-induced explosion models."⁵ Personally, I am not advocating that proto-Saturn flared up due to a similar "bipolar, jet-like explosion," but only that the excess energy of the jet-like columnar axis might have added to proto-Saturn's overcharge from where it had derived it in the first place.

One objection that might be raised against the above is that it can hardly be expected that the force of SN1987A's flare would not have blown its jet away—or, if not blown, perhaps forced into retraction. Besides, it is well known that at least some bipolar jets have remained in situ even *after* a star explodes. This is proven by the existence of just such jets in the Vela supernova remnant⁶ as well as the remnant of the supernova that gave rise to the Crab Nebula.⁷ But what this teaches us in turn is that even if jets eliminate themselves in stellar explo-

¹ W. Schomaker, "Jets May Trigger Supernovae," *Astronomy* (April 2001), p. 26.

² *Ibid.*

³ *Scientific American* (July 1988), p. 12.

⁴ W. Thornhill, "Formation of Chondritic Meteorites and the Solar System," *Chronology and Catastrophism Review*, X (1988), p. 53.

⁵ W. Shomaker, *loc. cit.*

⁶ Anonymous, "Do All Pulsars Fly Pole-First?" *Sky & Telescope* (September 2000), p. 20.

⁷ K. A. Svitil, "Cracking the Crab," *Discover* (February 2000), p. 12; R. Talcott, "The Crab's Inner Workings," *Astronomy* (January 2003), pp. 24, 26.

sions, they tend to form again, as we here posit to have transpired with the proto-Saturnian system.

As distant as it was in time, the memory of the proto-Saturnian polar column's association with the following event, mythologically known as the Creation, was retained by more than one ancient nation. As the translators of the 1973 edition of the *Linga Purana* state in the introduction to the work: "The entire phenomenon of creation is symbolised by the phallic image (*linga*) of Lord Śiva."¹ And: "According to the *Linga Purana*, the primary unevolved matter, the cause of the universe is Linga itself."² Shiva, it is believed, "permeates and imparts impetus to Linga and effects the work of creation in this way."³

So, similarly, among the Phoenicians who, according to Sanchoniathon, believed that the "beginning of all things was a dark and condensed windy air, or a breeze of thick air, and a chaos, turbid and black as Erebus."⁴ This "dark and condensed windy air," or "a breeze of thick air," was the same as the *ruach* of Elohim/Saturn, usually translated "spirit," but actually meaning "wind,"⁵ which also moved over the chaotic waters just before Creation took place as described at the beginning of the Book of *Genesis*.⁶ It is also the same as "the wind presided over by Dhruva" described in the *Linga Purana*.⁷ Sanchoniathon, however, continues to tell us that, "after a long series of ages," this wind "became enamored of its own first principles" and that "an intimate union took place." In view of what we have already learned, it seems obvious that this self enamoring, followed as it was by an "intimate union," is nothing but a philosophical rendering of proto-Saturn's impregnation by its own tornadic column. And, still according to Sanchoniathon, it was this "union" that served as "the beginning of the creation of all things."⁸

Since we have already, both in this work and in our previous one, presented enough evidence to show that the *linga*, or phallus, was merely one manner in which some of the ancients visualized proto-Saturn's polar *axis*, the direct association of this *axis* with Creation becomes evident.

Whether it was the primary cause or not, the retraction of the plasma column would have overburdened the proto-Saturnian orb beyond its holding capacity and, as first proposed by Immanuel Velikovsky,⁹ proto-Saturn would have suddenly flared up in a brilliant light which flooded Earth with radiance and temporarily blinded its inhabitants. It was an event that went down in the mytho-historical record as Day One.

The act of Creation had just begun.

¹ Anonymous Board of Scholars, *The Linga Purana* (Delhi, 1973), p. xx.

² *Ibid.*

³ *Ibid.*

⁴ R. Van Over, *op. cit.*, p. 187.

⁵ J. Strong, *Hebrew and Chaldee Dictionary* (Madison, N. J., 1890), p. 107.

⁶ For a detailed exposition of this subject See D. Cardona, *op. cit.*, pp. 262, 429, 434, 441, 446, 451.

⁷ *Linga Purana* I: 54: 65-68.

⁸ R. Van Over, *loc. cit.*

⁹ I. Velikovsky, "The Pitfalls of Radiocarbon Dating," *Pensée IVR* IV (Spring-Summer 1973), p. 13.

Chapter 14

Let There Be Light

THE FIAT LUX

The sudden flare-up of the proto-Saturnian sun would have left an indelible mark on the human psyche and it therefore should have etched itself in the mytho-historical records of all nations. Our thesis demands it. As we shall see, the repercussion this event had on the later religions of the world right down to our present day, *as also on present astrophysical theories*, is not inconsequential.

The most notable mythic evidence for the event in question as far as the Western World is concerned comes from that great Judaic-Christian source, the Book of *Genesis*. It is amazing that Immanuel Velikovsky, who was first to recognize the flaring up of proto-Saturn, did not realize this fundamental fact. As is well known, the very beginning of this tract deals directly with Creation. And the very first thing that was said to have been created was light.

“And Elohim said, let there be light. And there was light. And Elohim saw the light, that it was good. And Elohim divided the light from the darkness.”¹

Ever since the above words came to the attention of the Western World, Christian theologians have been grappling with the apparent contradiction they invoke. This is because, according to the same *Genesis*, the Sun, the Moon, and the stars, which one would have believed to have shed the light in question, were actually said to have been created later. Nor must it be thought that this apparent incongruity only appears in *Genesis*. As George Rawlinson realized late in the nineteenth century, the same incongruity is also contained in the Babylonian version of the Creation.

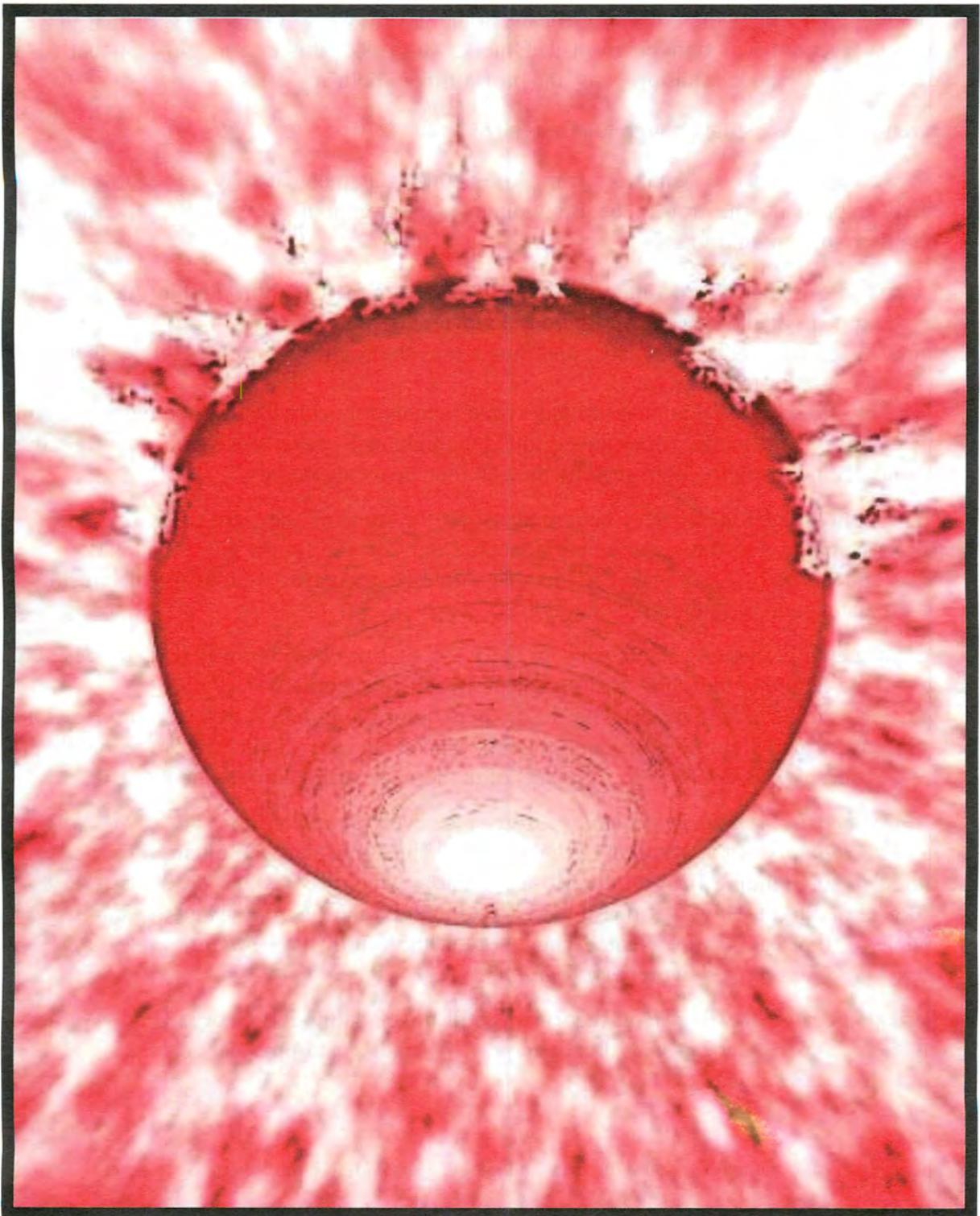
“While the whole tone and spirit of the two accounts, and even the point of view from which they are taken, differ, the general outline of the narrative in each is nearly the same. In both we have the earth at first ‘without form and void,’ and ‘darkness upon the face of the deep’...In both we have light mentioned before the creation of the sun and moon...”²

Rawlinson was also aware that various authorities of his time were of the opinion that the account in *Genesis* was actually adapted from that of the Babylonians.

“It has been generally seen that this [Babylonian] cosmogony [as presented by Berossus] bears a remarkable resemblance to the history of Creation contained in the

¹ Genesis 1:3-4.

² G. Rawlinson, *The Seven Great Monarchies of the Ancient Eastern World*, Vol. I (N. Y., 1885), p. 94.



And Elohim said: "Let there be light. And there was light."
(Illustration by Richard M. Smith.)

opening chapters of the book of Genesis. Some have gone so far as to argue that the Mosaic account was derived from it. Others, who reject this notion, suggest that a certain ‘old Chaldee tradition’ was ‘the basis of them both’.¹

Even so, he was astute enough to also realize that:

“If we drop the word ‘Chaldee’ from [the above] statement, it may be regarded as fairly expressing the truth. The Babylonian legend embodies a primeval tradition, common to all mankind...”²

This is so true that we encounter the same situation in the Creation myth of the Maya on the opposite side of the world. “In [the day known as] *Six Cib*,” the *Chilam Balam* naively recounts, “the first candle was made, and thus it was that light was created where there had been neither sun nor moon.”³

The Jews, however, seem never to have been bothered much with this conundrum. Louis Ginzberg informs us that they have always held the light of *Genesis* to have been entirely different and distinct from the light shed by the common heavenly bodies.

“The light created at the very beginning is not the same as the light emitted by the sun, the moon, and the stars, which appeared only on the fourth day [of Creation]. The light of the first day was of a sort that would have enabled man to see the world at a glance from one end to the other.”⁴

All of which perhaps explains why, in the Book of *Psalms*, Elohim is lauded as having “prepared the light *and the sun*”⁵ as if they were two distinct entities.

Writing in 1956, Zsolt Aradi, who, like others before him, had fallen victim to this pitfall, was still vainly attempting to clamber out of this incongruity. In an effort to reconcile the seeming absurdity of *Genesis* with the tenets of modern scientific thought, he wrote that:

“Many theories of modern cosmology agree even with the minutest details of the Biblical account about the creation of the universe. The Bible and theologians have been ridiculed for standing firm on the Mosaic version, which asserts that on the first day God created light. How is it possible to create light on the first day when the sun, the moon, and the stars were created later, i.e., on the fourth day? Modern cosmology, however, offers the following confirmation.”⁶

Perhaps because the Big Bang theory was still novel—although George Gamow’s best-selling book on the subject was already in print⁷—Aradi’s astrophysical description of the

¹ *Ibid.*, p. 93.

² *Ibid.*

³ I. Nicholson, “Mexican and Central American Mythology,” *Mythology of the Americas* (London, 1970), p. 177.

⁴ L. Ginzberg, *The Legends of the Jews*, Vol. I (Philadelphia, 1961), pp. 8-9.

⁵ Psalms 74:16 (emphasis added).

⁶ Z. Aradi, *The Book of Miracles* (Derby, Connecticut, 1961), p. 256 (emphasis added).

⁷

supposed creation of the Universe was, even then, somewhat primitive. In brief, and according to him, space was originally filled by a cold rarefied gaseous mass which was immersed in total darkness. Through millions of years, this gaseous mass slowly condensed into "billions of small globes." This condensation produced pressure and thus heat which resulted in "the first *nuclear reactions*, which increased the temperature even more." This led to those "billions of small globes," which he himself refers to as "stars," becoming incandescent. "Thus," he tells us, "there was light for the first time"—in other words, the *fiat lux* of *Genesis*. "This was not the light of the sun or of the moon," he wrote, "it was light, material light, the same light as is produced by atomic fission."¹

True, this would not have been the light of the Sun or of the Moon, but, even according to him, it would have been the light of billions of stars which, if we are to believe what *Genesis* states, were still created *after* the shedding of the light.

Let not the educated reader think all this is rather silly because, as I shall soon indicate, this theological conundrum is not one that has succumbed to the vagaries of time. On the contrary, it is still a part of modern religious thought and remains, to this very day, a thorn in the side of many a Christian sect which continues to uphold a creed based on the rigid interpretation of the books of the Old Testament. And, to be sure, Aradi was neither the first nor the last to attempt a reconciliation of the Book of *Genesis* with astrophysics.

THE BIRTH OF A THEORY

For quite a number of years in his career, Zsolt Aradi held various posts in which he acted as a voice for the Vatican. It is therefore strange that he seems to have been unaware of the work inaugurated by the Belgian Jesuit priest, Georges Lemaître, which, together with that of George Gamow, he could have utilized to better advantage in attempting to invoke a scientific explanation for the light of *Genesis*. Most books on the subject stress that Lemaître, who was also a brilliant astrophysicist, based his theory on the principles of general relativity together with the belief that the galaxies were receding from each other at incredible speed. What this implied to him is that, at some point in the astronomical past, the galaxies of the entire Universe must have occupied the same space. Retrocalculating further back in time convinced him that, at some point in the unknowable past, the entire matter which constituted the galaxies and the stars contained within them had to have existed as an independent mass of condensed substance. Thus, in 1927, he "galvanized cosmologists...with his proposal that a hot, dense 'primeval atom' exploded to create the present universe."²

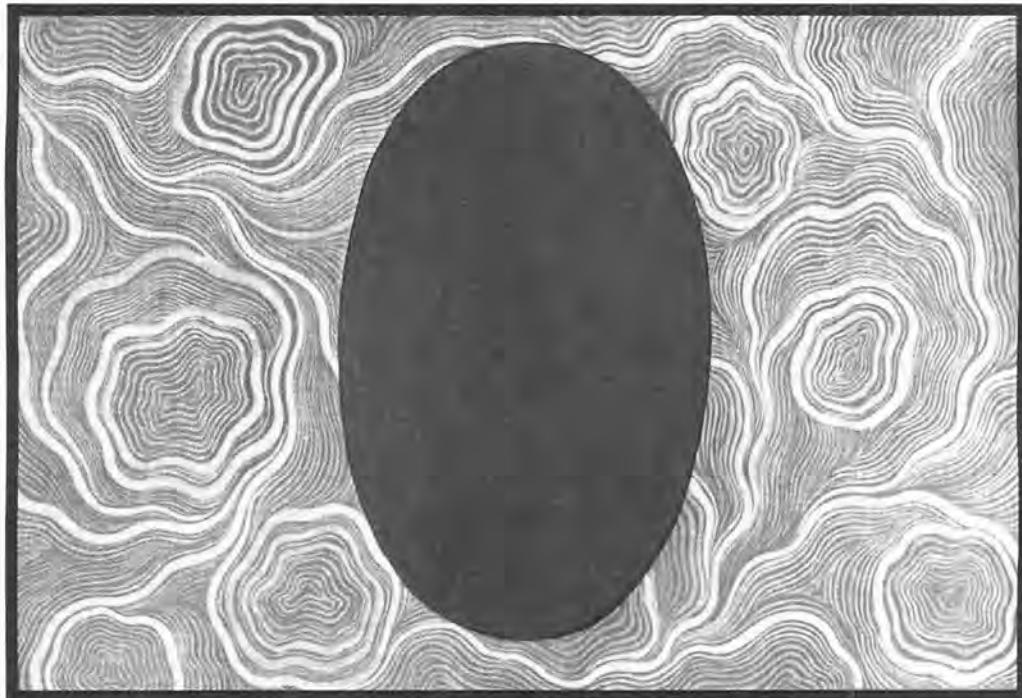
Relativity and galaxies aside, Lemaître obviously familiarized himself with the Creation myths of other nations, especially those which emphasized the formation of a cosmic egg out of which all of creation is said to have tumbled. The myth of the cosmic egg was believed in by a wide section of the ancient world including the Egyptians,³ the Phoenicians,⁴ the

¹ *Ibid.* (emphasis as given).

² E. Ferington, *et al.*, *The Cosmos* (Alexandria, Virginia, 1990), p. 61.

³ E. A. W. Budge, *The Egyptian Book of the Dead* (N. Y., 1895/1967), pp. cxii, xcix.

⁴ L. Delaporte, "Phoenician Mythology," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 82.



Symbolic representation of Hiranyagarbha, the cosmic egg of Brahma.
(Tempera painting from India—c. 1775-1800.)

Hindus,¹ the Chinese,² the Japanese,³ the Pelesgians,⁴ the later Greeks,⁵ the Tahitians,⁶ the Fijians,⁷ and the indigenes of the Society Islands.⁸ Moreover, in the Hindu tradition, as contained in the *Laws of Manu*, this cosmic egg is described as having been “as brilliant as the sun,”⁹ while, in a different version, the egg is associated with a celestial lotus which was said to have been as “bright as a thousand suns.”¹⁰ Even the Chinese account has this egg associated with “the changes of the Darkness and the Light.”¹¹ Lemaître’s acquaintance with these myths is betrayed by the fact that he himself alluded to the “primeval atom” of his theory as the “cosmic egg.”¹²

¹ *Laws of Manu* I:v:5.

² M. Soymie, “China: The Struggle for Power,” *Larousse World Mythology* (London, 1972), p. 274.

³ E. D. Saunders & B. frank, “Japan: Cults and Ceremonies,” in *ibid.*, p. 298.

⁴ R. Graves, *The Greek Myths*, Vol. I (Harmondsworth, 1964), p. 27.

⁵ *Orphic Fragments*, 60, 61, 70, 86.

⁶ A. M. Panoff, “Oceania: Society and Tradition,” *Larousse World Mythology* (London, 1972), p. 496.

⁷ G. H. Luquet, “Oceanic Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 449.

⁸ *Ibid.*, p. 457.

⁹ *Laws of Manu*, loc. cit.

¹⁰ V. Ions, *Indian Mythology* (London, 1967), p. 28.

¹¹ *Compendium of Wong-Shi-Shing*, as cited by T. P. Crawford in I. Donnelly, *Ragnarok: The Age of Fire and Gravel*, reprinted as *The Destruction of Atlantis* (N. Y., 1883/1971), p. 210.

¹² E. Ferington, et al., *op. cit.*, pp. 62-63; I. Asimov, *In the Beginning...* (N. Y., 1981), p. 22; R. W. Wescott, *Predicting the Past* (Deerfield Beach, Florida, 2000), p. 176.

This, however, is not where Lemaître's awareness of Creation myths ends. Well versed in theology, it is inconceivable that he would not have come across that great commentator on Biblical Scripture popularly known as the Ramban, an acronym for Rabbi Moshe ben Nachman. As the Israeli nuclear physicist Gerald Schroeder noted in 1990, "the Ramban...had the remarkably modern insight that at the moment after creation, all the matter in the universe must have been concentrated in a tiny speck."¹ This led the same Schroeder to argue in detail, very much like Aradi before him, that there is no contradiction to be found between the account of Creation as described in *Genesis* and the current scientific dictum.² This "insight," as developed by the Ramban, is identical to that reached by Lemaître who, in accordance with Papal wishes for its clerical scientists to try their best to reconcile the Old Testament with modern science, pulled this ace out of his sleeve. Nor is this merely *my* contention.

"Lemaitre was not only a very competent scientist with general relativity as his specialty," Hannes Alfvén noted, "but also a prominent member of the Catholic hierarchy. To him personally his theory of 'l'Atome primitif' was an ingeneous [sic] synthesis of general relativity and the Thomistic dogma of a creation *ex nihilo* (although he never expressed this explicitly in his papers)."³

Alfvén, however, knew what he was talking about. As it has now become well known:

"To Alfvén, the Big Bang [theory, which is what Lemaître's conclusions led to] was a myth—a myth devised to explain creation. 'I was there when Abbe Georges Lemaître first proposed this theory,' he recalled... 'He said in private that this theory was a way to reconcile science with St. Thomas Aquinas' theological dictum of *creatio ex nihilo* or creation out of nothing'.⁴"

George Gamow then refined and further expounded Lemaître's theory, ending up receiving the main credit for what later became known as the Big Bang theory. (The tag of "Big Bang," however, was coined somewhat later by Fred Hoyle, who was vehemently opposed to it. He meant it in derision, but the tag stuck.)

The Roman Catholic Church was not tardy in responding. With the advent of the theory, Pope Pius XII himself was bold enough to announce that "scientists are beginning to find the finger of God in the creation of the universe."⁵ As for Lemaître, it is not surprising that he was later decorated by the Vatican for his scientific achievements.⁶

In the end, the Big Bang theory was embraced by cosmologists and Biblical fundamentalists alike. Even Isaac Asimov, known better for his science fiction than his science, was influenced to include a long tract on the subject in one of his major works. "There are two

¹ R. N. Ostling, "Galileo and Other Faithful Scientists," *TIME* (December 28, 1992), p. 39.

² *Ibid.*

³ H. Alfvén, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 124.

⁴ A. L. Peratt, "Dean of the Plasma Dissidents," *The World & I* (May 1988), p. 197.

⁵ R. N. Ostling, *loc. cit.*

⁶ E. Ferington, *et al.*, *op. cit.*, p. 61.

places in the scientific view of the beginning of things as they now are,” he wrote, “where the command ‘Let there be light’ might seem to have an application.”¹ The first of these, according to him, involves the creation of the Solar System from what he believed to have been the slow collapse of “the formless, chaotic mass of dust and gas” which would eventually have resulted in nuclear fusion, giving birth to the brilliant Sun.² The second, still according to him, was Lemaître’s cosmic egg, in other words the Big Bang theory.³ As he himself reasoned:

“It is rather dramatic to imagine that ‘Let there be light’ marked the big bang and the initial period of energy-dominance. Light, after all, is a form of energy.

“In fact, we might paraphrase the first three verses of Genesis as follows to make them fit the scientific view of the beginning of the Universe:

“‘To begin with, fifteen billion years ago, the Universe consisted of a structureless cosmic egg which exploded in a vast outpouring of energy.’”⁴

Popular publications dealing with the Bible were not hesitant in incorporating this new “insight” into their works, as notice Alma Guinness who, in 1988, included the following in one of Reader’s Digest best selling books:

“Prevailing scientific theory proposes that the universe was created in a flash of light. This ‘big bang,’ or cosmic explosion, is believed to have occurred some 16 billion years ago. Some see parallels between this modern, scientific theory and the biblical account which opens with God’s command, ‘Let there be light’.”⁵

The irony of it all is that, by 2002, astrophysicists had changed their tune. No light, it was by then assumed, had been emitted at the inception of the Big Bang. As Tim Folger announced:

“Fourteen billion years ago, give or take an aeon, the Big Bang created the universe—or did it? If by universe you mean an abysmally black void with no stars, galaxies, planets, or the slightest promise of life, then the Big Bang’s your baby. But if you mean the starry cosmos we see around us today, a universe that includes at least one planet with life, the Big Bang was a bust. For 100 [million?] years after time began, the universe was less interesting than a mud puddle. Only a handful of elements—mostly hydrogen and helium, along with faint traces of lithium and beryllium—ricocheted through fathomless, unending gloom. Had anyone been around at the time

¹ I. Asimov, *op. cit.*, p. 21.

² *Ibid.*, pp. 21-22.

³ *Ibid.*, pp. 22-26.

⁴ *Ibid.*, pp. 23-24.

⁵ A. E. Guinness (Ed.), *Mysteries of the Bible* (N. Y., 1988), p. 18.

to bet on the future, the smart money would have been on more of the same: darkness, emptiness, death. Yet improbably, miraculously, the universe—the ultimate dark horse—beat those odds. It was reborn. A 100-million-year-long night ended when clouds of hydrogen collapsed and ignited...That moment—when the universe first lit up—was nothing less than a second creation, the one that really counts.”¹

Of course, die-hard fundamentalists and creationists will not be shaken by this paradigm shift. Some will argue that this fits the *Genesis* account even better since, in both scenarios, we have the shedding of the light preceded by a lengthy era of darkness. Nor will it amount to anything among them that no one had been around to be able to record it. To them, divine revelation counts more than scientific facts.

Neo-catastrophists had different ideas. But, among them, Roger Wescott was too cautious, where in other matters he threw caution to the wind, when he assigned the shedding of the Big Bang light to an unidentified body he referred to simply as Aster. He was, of course, referring to proto-Saturn without committing himself to it.

“...although I accept the postulation of a primal Big Bang [he wrote], I relocate that explosive event in both space and time. Instead of regarding it as the occurrence which originated the entire universe at the beginning of time, I regard it as a local occurrence which took place in our solar system only some thousands of years ago...I have chosen to refer to the planet [which caused this ‘local’ bang] as Aster.”²

Unlike Aradi and Gerald Schroeder, the Biblical scholar Nahum Sarna could find nothing that can be called scientific in the pages of *Genesis*. “It should be obvious,” he wrote, “that by the nature of things, none of these stories can possibly be the product of human memory, nor in any modern sense of the word scientific accounts of the origin and nature of the physical world.”³

“Biblical man, despite his undoubted intellectual and spiritual endowments [Sarna went on], did not base his views of the universe and its laws on the critical use of empirical data. He had not, as yet, discovered the principles and methods of disciplined inquiry, critical observation or analytical experimentation. Rather, his thinking was imaginative, and his expressions of thought were concrete, pictorial, emotional, and poetic. Hence, it is a naive and futile exercise to attempt to reconcile the biblical accounts of creation with the findings of modern science. Any correspondence which can be discovered or ingeniously established between the two must surely be nothing more than mere coincidence.”⁴

¹ T. Folger, “The Real Big Bang,” *Discover* (December 2002), pp. 41-42, 44.

² R. W. Wescott, “Quantalism and Prehistory,” *The Velikovskian* III:4 (1997), p. 28; see also *idem*, *Predicting the Past* (Deerfield Beach, Florida, 2000), pp. 18-19, 89 ff., 150-151, 255.

³ N. M. Sarna, *Understanding Genesis* (N. Y., 1976), p. 2.

⁴ *Ibid.*, pp. 2-3.

While we heartily sympathize with Sarna's own emotional views, through which he sees such trends as instigating an "unwholesome effect upon the understanding of the Bible itself," we cannot but disagree profoundly with him. Like him, we detect nothing of science *per se* in the pages of *Genesis*. What we recognize there, instead, is a record of past events. Like Sarna, we are not claiming that Biblical man, to use his own expression, was capable of a disciplined inquiry into the origin of the world, let alone the Universe as others would have it. But, contrary to his belief, we *do* claim that the opening verses of *Genesis* are nothing more than "the product of human memory" that he finds so difficult to accept. As David Talbott noted from the very beginning of his research on matters Saturnian:

"The curious thing about the archaic creation legends is this: In the early religious texts—for example those of Egypt and Mesopotamia—creation is described almost as if it were an event actually experienced by ancient man. Saturn and his acts of creation are depicted as cosmic events seen and heard."¹

Never mind the "almost" in the above. Nor will we restrict our coverage to Egypt and Mesopotamia—although, to be sure, that was never Talbott's intention. Our own research, however, has led us to believe that in Saturn's flare-up we finally hold in our hands the solution to the ancient teaser posed by the shedding of the light in *Genesis*. The connection with Saturn is manifest in Elohim's association with the light in question. It was, after all, Elohim/Saturn who was said to have created the light.

In the meantime, the above surely demonstrates that science is not averse to utilizing mythic evidence as a basis on which to construct its theories, even though, as particularly in this case, the mythic evidence is usually suppressed in succeeding discussions of such theories. Those, then, who might want to raise their voice against the use of similar, sometimes even the same, evidence as a basis for the cosmogonic theory presented in *this* work, should at least think twice before rendering their verdict.

ADOIL

The Old Testament, as we now have it, is not the only source in which the shedding of the light of *Genesis* is described. Also, that the light of *Genesis* was not created out of nothing, but that it was emitted by the "coming-apart" of a mysterious body, is demonstrated by the *Book of the Secrets of Enoch*. In its present form, this Slavonic essay seems to have been written about the beginning of the Christian era. Although the manuscripts which comprise this literary gem were discovered in Serbia and Russia, the work's final edition, perhaps even its original writing, is known to have been in Greek, while its actual composition has been traced to Egypt.² R. H. Charles believed the author to have been a Jew living in Alexandria and belonging to the "orthodox Hellenistic Judaism of his day."³ Not having been accepted by

¹ J. Gibson, "Saturn's Age," *Research Communications NETWORK* (October 15, 1977), p. 3.

² R. H. Platt, Jr., *The Forgotten Books of Eden* (N. Y., 1944), p. 81; R. H. Charles, *The Apocrypha and Pseudepigrapha of the Old Testament*, Vol. II (Oxford, 1913), p. 246.

³ *Ibid.*, p. 429.

the Council of Nicaea, or some such other council, this Enochian fragment, like others similar to it, disappeared from the light of history and only in the beginning of the twentieth century did it finally resurface in Europe.

Like the somewhat similar Book of *Job*, *Enoch* contains much that is of value in understanding the religio-cosmogonical beliefs of ancient times. These “unaccepted” literary compositions sometimes come closer to describing the actual train of ancient events, even if garbed in more fanciful terms when judged by “accepted” religious standards, than do the authorized sequels we find embodied between the covers of the Christianized Bible. The *Book of the Secrets of Enoch*, in fact, describes the creation of the primordial light in a somewhat fuller version than does the Book of *Genesis* and it is from its pages that we learn of this light being emitted by the “coming apart” of Adoil. In the quote which follows, God is describing to Enoch the manner in which he unfolded Creation.

“I commanded in the very lowest part that visible things should come down from invisible, and Adoil came down very great, and I beheld him, and lo! he had a belly of great light.

“And I said to him: ‘Become undone, Adoil, and let the visible come out of thee.’

“And he became undone, and a great light came out. And I was in the midst of the great light, and as there is born light from light, there came forth a great age, and showed all creation, which I had thought to create.

“And I saw that it was good.”¹

The name Adoil, also Idoil, more than probably derives from *yad El*, Hebrew for “hand of El.”² We even find the expression *yad Elohim —yd ilm*—in a cuneiform tablet from Ugarit.³ Thus, again, we find the shedding of the light associated with El/Saturn, which is reinforced further by the Book of *Psalms* where it is stated that “the heavens declare the glory of God: and the firmament sheweth his handiwork”⁴—where “God” is the English translation of “El.”⁵ Julius Morgenstern even sees this, and other passages in *Psalms*, as representing “El as the radiant god.”⁶

GNOSTIC MYSTICISM

The Gnostics are usually described as members of a heretical sect of early Christians who claimed to have superior knowledge of spiritual matters. Of course, the tag of “heretical” was applied to them by other Christians who recognized that what the Gnostics taught was not

¹ *Secrets of Enoch* XXV:1-4.

² R. H. Charles, *op. cit.*, p. 445.

³ R. R. Stieglitz, “Ancient Records and the Exodus Plagues,” *Biblical Archaeology Review* (November-December 1987), p. 47.

⁴ Psalms 19:1.

⁵ J. Morgenstern, “Divine Triad in Biblical Mythology,” *Journal of Biblical Literature*, Vol. LXIV (1945), p. 22.

⁶ *Ibid.*, pp. 22-23.

contained in either the Old Testament or the accepted Gospels. That the Gnostics interpreted holy scripture through the use of what can best be termed mystic philosophy, there is no doubt. In that respect, they ended up creating a corpus of sacred scripts of, and for, their own inspiration. They were not, however, the only ones.

"After the closing of the Old Testament and during the first centuries of the Common Era [Willis Barnstone informs us], inspired authors continued to write sacred scriptures. They were written by Jews, Christians, Gnostics, and Pagans. Many of these texts were of amazing beauty and religious importance and competed with books within the canon. The Jewish texts are in large part called pseudepigrapha, which includes the Dead Sea Scrolls; the Christian texts are called Christian Apocrypha; the Gnostic scriptures, today so fascinating and even modish, were called by their orthodox rivals heretical."¹

That these beliefs were condemned as heretical by orthodox Christians is understandable. One of these Gnostic texts, for instance, assigns the shedding of the primeval light not to the Christian God but to a pre-existing being. God is there said to have offered a challenge to prove his lone existence. "If someone exists before me," he is said to have uttered, "let him appear so that we might see his light."²

"And immediately, behold, a light came out of the eighth, which is above, and passed through all the heavens of the earth.

"When the First Father [i.e., God] saw that the light was beautiful as it shone forth, he was amazed and was very much ashamed."³

In a different Egyptian Gnostic text, God is said to have commenced on Creation by laughing seven times. "When he first laughed," it is written, "light appeared and its splendor shone through the whole universe."⁴

In time, the Gnostics disappeared except for the Mandaeans who survived into modern times, mainly in southern Iran and southern Iraq. In one of their sacred texts, the primordial light is alluded to without the event that gave it birth being described. As it is there stated:

"There is no boundary for the light and it was not known when it came into being. Nothing was when the light was not, nothing was when radiance was not...there never was a boundary for the light."⁵

In the *Paraphrase of Shem*, a non-Christian Gnostic work which resurfaced at Nag Hammadi, about three hundred miles south of Cairo, in 1945, the primeval light is actually

¹ W. Barnstone, *The Other Bible* (N. Y., 1984), p. xvii.

² *Ibid.*, p. 67.

³ *Ibid.*

⁴ R. Van Over, *Sun Songs: Creation Myths from Around the World* (N. Y., 1980), p. 272.

⁵ W. Barnstone, *op. cit.*, p. 127.

associated with a star. True enough, this star was symbolized as the radiant garment of Derdekeas, “the son and likeness of the perfect Light” itself.¹ Derdekeas there tells Shem: “And the star of the Light...is my invincible garment which I wore in Hades [that is, in darkness].”² There is, however, nothing peculiar about the metaphorical portrayal of light as the garment of the object that is seen to radiate it.

The most developed and widespread of Gnostic ideologies was that of the Manichaeans which was founded by, and named after, its founder Mani. Born in Babylonia in about A.D. 216, Mani was a teacher, and also something of an artist, in the Persian kingdom of Shapur I (A.D. 241-272). Having come in conflict with the Zoroastrian Magi under the following reign of Bahram I (A.D. 274-277), he was arrested and placed in chains. The accounts of his death are contradictory. Some documents reported that he died in prison, others that he was crucified, still others that he was flayed alive, and one more reports that he was decapitated with his head set high on the city gate.

Mani taught that Zoroaster, Jesus, and Buddha were his forerunners and that he was simply continuing, while perfecting, their doctrine. His own mission, he declared, was to lead humanity from its abject servitude to the “King of Light.” Having authored various book-length works,³ most of them were destroyed and, today, exist only as fragments and partial quotations by other writers.

According to Mani, the leader of the realm of light, whom he referred to as the King of Light and the Father of Light, is located in the north,⁴ the very locality from which the Saturnian sun had shed its radiance. Moreover, in the Iranian texts, this Father of Light is named Zurvan⁵ who, as is well known, was the Iranian name for Saturn.⁶

It can thus be additionally seen that the light of *Genesis* was of great eminence among those of the Judeo-Christian faith. This became so much so that, to use the words employed by C. H. Dodd, light became the “natural symbol for deity.”⁷ In time, as I intend to show in future volumes of this series, the shining of such light was associated by those of a religious mind with the birth of various heroes, kings, and prophets. Nor did the religious fixation with this primordial light remain an obsession of the past. Those Jews who remain faithful to the teachings of the Kabbalah not only believe that the light of *Genesis* can be physically reproduced, but they “work” toward its eventual reappearance.

¹ F. Wisse in *ibid.*, p. 101.

² *Ibid.*, p. 111.

³ Among Mani’s books are the following: *The Book of Giants*, *The Book of Secrets*, *The Drawings and the Commentary on the Drawings* (which contained his own pictorial representation of his ideas), *Epistles*, *The Great Gospel* (also known as *Living Gospel*), *Psalms and Prayers*, *Shabuhragan*, *The Treasure of Life*, and *Treatise*.

⁴ W. Barnstone, *op. cit.*, p. 673.

⁵ *Ibid.*

⁶ J. O’Neill, *The Night of the Gods* (London, 1893), pp. 778-779; see also, J. de Menasce, “Persia: Cosmic Dualism,” *Larousse World Mythology* (London, 1972), p. 203; B. L. van der Waerden, *Science Awakening II: The Birth of Astronomy* (Netherlands, 1974), p. 194; D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 265, 310.

⁷ C. H. Dodd, *The Fourth Gospel* (London, 1965), p. 201.

"Kabbalah is explicitly esoteric [Martin Bernal noted]. It rejects both the historicism of the common 'superficial' reading of the Bible and the rationality of orthodoxy in favor of an 'inner' reading of the text which is supposed to reveal a mystic cosmic struggle for the good Jews to *reconstitute the primeval light shattered at the moment of creation.*"¹

THE TERRIFYING SPLENDOR

Zurvan notwithstanding, the paucity of Saturnian associations in the Gnostic documents which, after all, are somewhat late as sources go, is more than compensated for by the earliest extant texts at our disposal. True enough, in one of the, if not the, earliest of these—the convoluted account of Creation contained in the Babylonian *Enuma Elish*—the shedding of the light is missing. This, however, is due to a break of some twenty lines in the cuneiform tablet that would have contained this event. On the other hand, newer fragments indicate that Apsu, the primordial celestial ocean, and Tiamat, its feminine counterpart,² bewailed the creation of the light. More than that, in a religio-philosophical allegory worthy of the later Hindus, Apsu and Tiamat are said to have planned the changing of the light back into darkness. "Let the light be darkened," it is there written, "like night may it be."³ That they failed need not be told.

Leaving the *Enuma Elish* aside, we turn to the well known Mesopotamian deities identifiable as Saturn. Among these, the one known as Anu was described as having shone with a "terrifying splendor,"⁴ which is hardly descriptive of the present state of the planet Saturn. Nor is Anu the only Saturnian deity from Mesopotamia who was said to have radiated brilliantly. It was likewise with Ninurta, one of whose epithets had originally been translated to mean "King, Storm whose brilliance surpassed (all others)"⁵ or "King, Storm, whose splendor is Heroic."⁶ Through the corrections introduced by Sjoberg and Bergmann,⁷ however, the epithet actually translates as "King, Light whose brilliance surpassed (all others—i.e. all other gods)."⁸

Formerly rendered by earlier mythologists as Ninib, Ninurta was also lauded as "he who, like the sun, the light of the gods, *irradiates the nations.*"⁹ Ninurta also bore the *bona fide* alias of Ningirsu¹⁰—the Lord of Girsu (in Lagash).¹¹ As recorded in Gudea's Cylinder B,

¹ M. Bernal, *Black Athena* (New Brunswick, 1988), p. 149 (emphasis added).

² D. Cardona, *op. cit.*, pp. 266-267, 269.

³ R. Van Over, *op. cit.*, p. 175.

⁴ S. Langdon, *Sumerian Liturgies and Psalms* (Philadelphia, 1919), p. 297.

⁵ H. Lewy, "Origin and Significance of the Mâgêñ Dâwîd," *Archiv Orientalni* 18:3 (1950), p. 335.

⁶ *Ibid.*

⁷ A. W. Sjoberg & E. Bergmann, *The Collection of the Sumerian Temple Hymns* (N. Y., 1969), p. 100.

⁸ D. Cardona, *op. cit.*, pp. 125, 127.

⁹ G. Rawlinson, *op. cit.*, p. 87 (emphasis added).

¹⁰ F. Guirand, "Assyro-Babylonian Mythology," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 60.

¹¹ H. Lewy, *loc. cit.*

Ningirsu is said to have come forth in overwhelming splendor.¹ "In the land," it is there written, "it became day."² As it was also said of him : "he changes darkness into light."³

Another radiating Babylonian god was Bel. Like the Canaanite Ba'al, Bel was more of a title, meaning "Lord," than an actual name. That the Babylonian Bel is to be identified as yet one more personification of Saturn was intuited by Stephen Langdon who recognized in him the Greek Cronos (the same as Kronos), whom he unfortunately misidentified as the setting or autumn Sun.⁴ Nor need we rely on Langdon's intuition for this identification since Servius confirmed that the god called Bel by the Assyrians represented both the Sun and the planet Saturn.⁵ The reason behind the confusion between Saturn and the Sun among modern, as well as ancient, writers on mythology should by now be more than evident. Thus, as Langdon himself informs us, a marble altar from Palmyra, dedicated by Tiberius Claudius Felix to Malak Bel—King Bel or the Lord King—shows the god in question as *Sol sanctissimus* (or *santissimo*), that is the "most Sacred Sol."⁶ That the name Sol was applied to the planet Saturn before it became the Latin designation for the present Sun need not be repeated here.⁷

Some of the above was used in our previous volume as evidence for the former sun-like quality of what is now the planet Saturn.⁸ It must however be understood that it was precisely from this moment on—that is, from the moment proto-Saturn flared up—that it began to radiate as a virtual sun.

THE BIRTH OF RA

Among the ancient Egyptians, proto-Saturn's flare-up was remembered as the birth of Ra. Among Ra's non-solar characteristics is the fact that Ra was said to have been upheld by water rather than air—the water in this case being that of Nu, or Nun, the primeval watery abyss.⁹ It is from this celestial watery abyss that Ra was said to have been born,¹⁰ even though he was said to have given birth to himself¹¹ and to have *created* the watery abyss.¹² According to the *Pert em Hru*, this watery abyss, this Nu, flooded Ra "with his rays of light."¹³ Normally it would seem rather strange for an expanse of water to radiate light. It does not, however, appear that strange when we remember that this watery abyss, this Nu, was the manner in which the

¹ W. F. Albright, "The Mouth of the Rivers," *The American Journal of Semitic Languages and Literatures*, 35:4 (July 1919), p. 165.

² *Ibid.*

³ M. Jastrow, Jr., *The Religion of Babylonia and Assyria* (Boston, 1898), p. 57.

⁴ S. H. Langdon, *Semitic Mythology*, Volume V of *The Mythology of All Races* (N. Y., 1964), p. 61.

⁵ M. van der Sluijs, "Gods and Planets," Part 2, *Chronology & Catastrophism Workshop* (2003:2), p. 14.

⁶ S. H. Langdon, *op. cit.*, pp. 58, 60-61.

⁷ D. Cardona, *op. cit.*, pp. 122, 139, 148, 165, 441.

⁸ *Ibid.*, pp. 120-140.

⁹ E. A. W. Budge, *op. cit.*, p. cii.

¹⁰ *Ibid.*, pp. 6, 251-252, 281, 325, 338.

¹¹ *Ibid.*, p. 6.

¹² *Ibid.*, p. 251.

¹³ *Ibid.*, p. 250.



Sol Sanctissimo on the front of the dedicatory altar erected by Tiberius Claudius Felix at Palmyra in honor of Malak Bel.

lotus until the day when, weary of his own impersonality, he rose by an effort of will from the abyss and *appeared in glittering splendor* under the name of Ra.”³

PHILO'S ILLUMINATED AIR

To the Phoenicians the celestial watery abyss was known as Mot.⁴ And, like the Egyptians, they, too, believed the light to have been shed by this watery mass. At the dawn of Creation, Philo Byblius tells us, “Mot burst forth into light.”⁵ He then continues by telling us

ancients portrayed the circumstellar disk surrounding the proto-Saturnian sun. In fact this is rather telling because it would not have been distinctly apparent to those who witnessed the event whether the light had been emitted by the proto-Saturnian orb or the circumstellar disk surrounding it. As Wallis Budge informs us: “The birth of light from the waters and of fire from the moist mass of primeval matter, and of Ra from Nu, formed the starting point of all mythological speculations, conjectures, and theories of the Egyptian priests.”¹ Conforming with the erroneous belief that Ra was the Sun, Budge explains this by stating that: “The light of the sun gave birth to itself out of chaos”²—which is a silly rationalization. A different version of the birth of Ra was told by Ra’s own priests:

“Formerly, according to the priests of Heliopolis, the sun god reposed, under the name of Atum, in the bosom of Nun, the primordial ocean. There, in order that his lustre should run no risk of being extinguished, he took care to keep his eyes shut. He enclosed himself in the bud of a

¹ *Ibid.*, p. xcix.

² *Ibid.*

³ J. Viaud, “Egyptian Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 11.

⁴ D. Cardona, *op. cit.*, pp. 266, 433, 446.

⁵ Eusebius Pamphili, *Evangelicae Praeparationis*, I:x:33d.

that, while Creation was going on, “the air was illuminated” and that this illumination was “due to the flaming of the earth and the sea.”¹

Had we not come across the Egyptian version of the shedding of the light by the celestial watery abyss, which is comparable to the emission of light by the Phoenician Mot, there would have been no way in which we could have utilized Philo’s “illuminated air” as evidence of proto-Saturn’s flare-up. Coupled with what we have already unraveled, and will continue to unravel, this Phoenician tidbit gains meaning. Proto-Saturn’s flare-up, occurring as it did when the orb was seen floating over the primordial celestial waters, would have been seen to set both that sea and the sky itself on fire.

(All that the ancient Greeks, who forgot so much,² seem to have retained of the event is that Kronos/Saturn is “representative of the powers of light.”³)



Brahma, who is said to have been born from a lotus that was as bright as a thousand suns.

AS BRIGHT AS A THOUSAND SUNS

Similar belief, likewise clad in philosophical jargon, is also encountered in Hindu texts. Thus, the *Laws of Manu* state:

“This (world) was darkness, unknowable, without form, beyond reason and perception, as if utterly asleep.

“Then the august and self-existing Being, he who never unfolded, having unfolded this (universe) under the form of the great elements and others, having shown his energy, *appeared to scatter the shades of darkness.*”⁴

Here, for one thing, the unfolding of this “self-existing Being” brings to mind the “coming apart” of Adoil. The scattering of “the shades of darkness” is, however, more explicitly re-

¹ L. Delaporte, “Phoenician Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 82.

² Plato, *Timaeus* 22 C-D; M. Bernal, *op. cit.*, pp. 110-111.

³ W. A. Heidel, *The Day of Yahweh* (N. Y., 1929), p. 470.

⁴ *Laws of Manu* I:v:5 (emphasis added).

ferred to in even earlier Vedic texts. Varuna, the Vedic equivalent of the Greek Ouranos,¹ is there lauded as he “who, after his decree, o’erspread the Dark Ones with a robe of light”²—which, again, reminds us of the “invincible garment” worn by “the star of Light” mentioned in the *Paraphrase of Shem*.

We have also already seen how Soma is both a name of Shiva and an epithet of Yama, and thus to be identified as Saturn. An epithet of Soma himself is Pavamana, who is sometimes referred to by the double name as Soma Pavamana.³ Of this aspect of the Saturnian deity it is then said:

“He, Pavamana, hath produced the lofty Law, the brilliant light, destroying darkness black of hue. From tawny Pavamana, the Destroyer, radiant streams have sprung, quick streams from him whose gleams are swift.”⁴

Very much like the Egyptian Ra, Brahma, too, was said to have sprung forth from a lotus which was described as having been as “bright as a thousand suns,”⁵ which is why, in iconography, Brahma is often shown seated on just such a flower.

P’AN-KU

A look at the Chinese *Compendium of Wong-Shi-Shing*, among other things, reveals that:

“P’an-ku came forth in the midst of the *great chaotic void*, and we know not his origin; that he knew the rationale of heaven and earth, and comprehended *the changes of the Darkness and the Light*.”⁶

Once again, as in the case of Philo’s “illuminated air,” P’an-ku’s comprehension concerning “the changes of the Darkness and the Light,” garbed as it is in that brand of philosophical wording for which the Chinese have become so famous, would poorly illustrate our thematic structure were it not for the fact that the same *Compendium* also tells us that P’an-ku “existed *before* the shining of the light.”⁷

HALF A WORLD AWAY

As noted earlier, a song composed by the Maya of Yucatan during the Spanish period, and which now concludes the *Chilam Balam*, describes the same event as the creation of “the number-one candle.” In keeping with our thematic outline, this “candle,” which can be viewed as an analogy of the plasmatic *axis mundi*, gave light “in the absence of sun and moon.”⁸

¹ See here D. Cardona, *op. cit.*, pp. 167-169, 269, 310.

² *Rig Veda*, VIII:41:10.

³ *Ibid.*, IX:66:2-3.

⁴ *Ibid.*, IX:66:24-25.

⁵ V. Ions, *op. cit.*, p. 28.

⁶ The *Compendium of Wong-Shi-Shing*, see reference #24. (emphasis added).

⁷ *Ibid.* (emphasis added).

⁸ G. Brotherton, *Image of the New World* (London, 1979), p. 185.

The command “let there be light” also appears in the Creation myth of the Quiché Maya of South America as contained in their sacred book, the *Popul-Vuh*. In contemplating what was to be done, their composite Creator is said to have conferred with his alter egos. Coming to a joint decision, the order was then given:

“Thus let it be done! Let the emptiness be filled!...Let there be light, let there be dawn in the sky and on the earth!”¹

Raymond Van Over, however, cautions us to beware the fact that the mythic tales of the Maya were mainly translated by sixteenth-century Spaniards, most of whom were Catholic priests. Thus, as he informs us, “there is an early European tone to many Latin American myths, although native traditions still dominate the basic themes.”² We should not, therefore, be adamant that the command “let there be light” is or was strictly so stated in the original Quiché version. In fact, others have translated the decree as “let there be brightness.”³ Even so, whichever translation best fits the Quiché rendition, we can still see that, half a world away, Creation was also believed to have commenced with the shedding of light. Moreover, the association of this version of Creation with the deity Hurakan, also known as Heart of Heaven,⁴ whom we had previously identified as the whirling cosmic axis,⁵ helps to link the shedding of the light with proto-Saturn.

In that other Maya book known as the *Chilam Balam of Chumayel*, Creation is also stated to have begun with *Chuen*, which word is translated as a “burning without flame.”⁶ This belief, that Creation commenced with a burning without flame, also existed in Nahua mythology.⁷ A burning without flame connotes light more than anything else.

FURTHER LIGHT FROM THE PRIMITIVE WORLD

While the myths of civilized nations, especially those that ended up in writing, are often convoluted, we will find that they are more rudimentary, and thus closer to the truth, among the less urbanized indigenes of the world’s continents. When it comes to the shedding of the primeval light, some of these are slightly fuller versions than the one contained in *Genesis*; others are even more concise. One of the shortest comes from Malaya which simply states that: “From the Supreme Being first emanated light toward chaos.”⁸

On the other hand, we have a somewhat fuller version from South Africa as recounted by Vusamazulu Credo Mutwa, a so-called witchdoctor of the Bantu tribe who was nevertheless educated in England. In a poem he wrote, “The Self-Created,” Credo Mutwa paraphrased the

¹ R. Van Over, *op. cit.*, p. 97.

² *Ibid.*, p. 95.

³ D. Gifford, *Warriors, Gods & Spirits from Central South American Mythology* (N. Y., 1983), p. 32.

⁴ R. Van Over, *op. cit.*, pp. 96-97.

⁵ D. Cardona, *op. cit.*, pp. 438-439.

⁶ I. Nicholson, *op. cit.*, p. 180.

⁷ *Ibid.*

⁸ R. Van Over, *op. cit.*, p. 386.

Bantu tale of creation as he received it from the elders of his tribe. As in the myths of other nations, “The Self-Created” starts with that time in which there were no stars, no Sun, no Moon, when all that existed was “darkness itself—a darkness everywhere.”¹ In this darkness a “spark” eventually appeared and, finding nothing on which to feed “it fed upon itself.”² Adhering to Bantu allegorical narrative while couching his words in Western style, Mutwa goes on with:

“The Living Spark did grow, and grew until
At last it equaled Nothingness in size,
And to sustain itself—proceed with growth,
It devour’d its mother, Nothingness—
And digested her
With the most awful flash of light
*That anyone or anything had ever chanced to see.”*³

In this “living spark” that fed upon itself and grew to release “an awful flash of light,” readers might notice a sophisticated similarity to the Big Bang theory we discussed earlier. And, given his Western education, Mutwa might very well have been aware of the hypothesis. However, as we additionally noted, long before the theory’s inception, the Jewish philosopher known as the Ramban had already developed this elegant notion. There is, therefore, no reason to disbelieve Mutwa on this score. Besides, on various other matters, Mutwa’s rendering of Bantu belief conforms too well with the tenets contained in the universal mythohistorical record. And that this is not due to wholesale borrowing from the myths of other nations is evidenced by the different manner in which the same events are described.

Moving from the hot continent of Africa to North America’s present cold regions, we meet the Eskimos who were of the belief that the shedding of the light spelled the god’s death rather than his birth. Moreover, the Eskimos, who very often seem to have no concept of the past, have a habit of narrating former events as if taking place in the present. To them, the god who emitted the primordial light is known as Ataksak. This Ataksak lives in heaven. Very much like the Roman Janus in his original form, Ataksak does not have the form of a man. *He merely looks like a sphere.* When he died, or, as the Eskimos say, when he dies, his body shines resplendently.⁴

Much farther south the Zuni, too, had their myth of Creation. They, too, retained a memory of that time, “long ago, before the sky was blue,” when there was still no Sun, no Moon, and no stars. All that existed was Awona-Wilona, “the One Who Is Everything,” floating through the darkness and “carrying within himself the seeds of all existence.” Although the Zuni Creation myth seems to have gotten lost in its own chronology, mixing up succeeding events, it bears telling that, like that of other nations, it describes a celestial mist which

¹ V. Credo Mutwa, *Indaba, My Children* (Johannesburg, 1965), p. 3.

² *Ibid.*, p. 4.

³ *Ibid.* (emphasis added).

⁴ M. Fauconnet, “Mythology of the Two Americas,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 427.

“thickened into a sea” which bore a “glow.” This “glow” eventually brightened “until it became a sun”¹—which is more or less what seems to have actually transpired.

From the non-Maya lands of South America comes a tale which bears a striking similarity to the freeing of light from Adoil. A. Metraux relates it in the following words:

“Here is the tale of creation as told by the Chibcha Indians of Colombia. When it was dark, before anything in the world existed, light was enclosed in something big, which the Muiscas called ‘Chiminagua.’ This thing called Chiminagua—by which they mean ‘god’—rose to become bright and to free the light that was in it. Then with the emergence of this light things began to be created.”²

FINAL WORDS FROM OCEANIA

To the Maori of New Zealand, the light-emitting deity was known as Io. Of him it was said:

“Io dwelt within the breathing-space of immensity.
The Universe was in darkness, with [celestial] water everywhere.
There was no glimmer of dawn, no clearness, no light.
And he began by saying these words—
‘Darkness become a light-possessing darkness.’
And at once light appeared.”³

Rituals commemorating the emission of the light by Io were still being conducted in the twentieth century (as, perhaps, they are still being conducted to this day). Thus, according to Hare Hongi:

“The words by which Io fashioned the universe—that is to say, by which it was implanted and caused to produce a world of light—the same words are used in the ritual for implanting a child in a barren womb. The words by which Io caused light to shine in the darkness are used in the rituals for cheering a gloomy and despondent heart, the feeble aged, the decrepit; for shedding light into secret places and matters, for inspiration in song-composing and in many other affairs, affecting man to despair in times of adverse war. For such ritual includes the words [used by Io] to overcome and dispel darkness.”⁴

Among the Ngaitahu of New Zealand’s southern island, the light-emitting deity was known as Po. (In Hawaii, however, Po was the manifestation of the primeval darkness.⁵) This Po was said to have “begat Light, who begat Day-light, who begat enduring Light.”⁶

¹ H. Hirnschall, *The Song of Creation* (West Vancouver, 1979), myth #1.

² A. Metraux, “South America: Creation and Destruction,” *Larousse World Mythology* (London, 1972), p. 483.

³ R. Heinberg, *Memories and Visions of Paradise*, (Los Angeles, 1989), p. 24.

⁴ E. S. C. Handy, *Polynesian Religion* (Honolulu, 1927), pp. 10-11.

⁵ T. Henry, *Ancient Tahiti* (Honolulu, 1928), p. 345.

⁶ G. H. Luquet, “Oceanic Mythology,” *New Larousse Encyclopedia of Mythology* (London, 1972), p. 460.



The Zuni shedding of the light.
(As envisaged and painted by Helmut Hirnschall.)



The shedding of the light by their Creator, Io, is not only remembered by the Maori of New Zealand, but continued to be incorporated in their rituals down into the 20th century.
(Illustration by Y. S. Green.)

Similarly in Hawaii where we meet with the god Kane (or Tane) who, like the Saturnian deities of other nations, existed alone in a deep intense night.¹ Like the Roman Janus and the Eskimo Ataksak, Tane (some say Atea) "was at first a shapeless being."² As in the myths we have been discussing, the first thing that Kane created was light.³

The Tahitians had much to say about the age of darkness. "All was darkness," they intoned in one of their Creation chants, "it was continuous, thick darkness."⁴ And in this darkness there existed Ta'aroa. "But there was Ta'aroa, and he alone."⁵ Known as the "night of Rumia," the age of darkness was said to have existed from time immemorial.

"The night of Rumia...was a long night to name; it was thick darkness, the long night to name. The nights would be millions in the long night to name, it was the long, wearisome night, the night of Rumia!"⁶

Eventually, however, "Atea was free, and light came into the world." The exuberance experienced at the shedding of the light is then somewhat whimsically recounted in the following:

"There was tumbling and rolling over each other, in the ravines, in that department and this department.⁷ In what departments? In the assembly room and the room to run from! They all dispersed outside, shouting and clinging one to the other! The host of gods from their department first, and then the host of people from their department a little afterwards. This was the ending of the millions of nights of the long night of Rumia."⁸

The age of darkness had come to an end.

¹ M. Beckwith, *Hawaiian Mythology* (Honolulu, 1970), p. 44.

² T. Henry, *op. cit.*, p. 349; see also p. 364.

³ M. Beckwith, *loc. cit.*

⁴ T. Henry, *op. cit.*, p. 336.

⁵ *Ibid.*, p. 337.

⁶ *Ibid.*, p. 404.

⁷ In Tahitian: "*i te piha 'tu, e i te piha mai.*"

⁸ T. Henry, *op. cit.*, p. 412.

Chapter 15

Exploding Stars and Planets

VELIKOVSKY'S ORIGINAL SCENARIO

Was proto-Saturn's flare-up a unique event?

Because it was Immanuel Velikovsky who first intuited that proto-Saturn had flared up in a brilliant outburst of light, we should at least mention in brief what he believed to have been the cause for the event. Right from the start, Velikovsky claimed that the flare in question was due to proto-Saturn's eruption as a nova,¹ which claim he continued to uphold until his death.² The cause for this eruption, however, was blamed by him on a near-encounter between proto-Saturn and the planet Jupiter.³

"Such a scenario would explain the prominence of Saturn prior to its cataclysmic disruption and dismemberment...At some point, during a close approach to Jupiter, Saturn became unstable; and, as a result of the influx of extraneous material, it exploded, flaring as a nova which, after subsiding, left a remnant that the ancients still recognized as Saturn, even though it was but a fraction of the size of the celestial body of earlier days."⁴

This near-encounter was utilized by Ralph Juergens, despite the fact that his own version for the cause of proto-Saturn's flare-up did not require it.⁵

Velikovsky, of course, based his hypothesis on what he knew of mythology, but, unfortunately, the mytho-historical record does not uphold him on this particular issue. Now it is true that there are various mythological tales which others might utilize, as some have actually done, as evidence in support of Velikovsky's contention. Among them we could enumerate the cutting to pieces of Osiris by Set, the beheading of Brahma by Shiva (whom Velikovsky had misidentified as a personification of Jupiter), and the dethroning of Kronos by Zeus. But, whether as Osiris, Brahma, or Kronos, in none of the above myths is Saturn said to have shed a light when attacked by his antagonist. And since the shedding of the light by proto-Saturn is

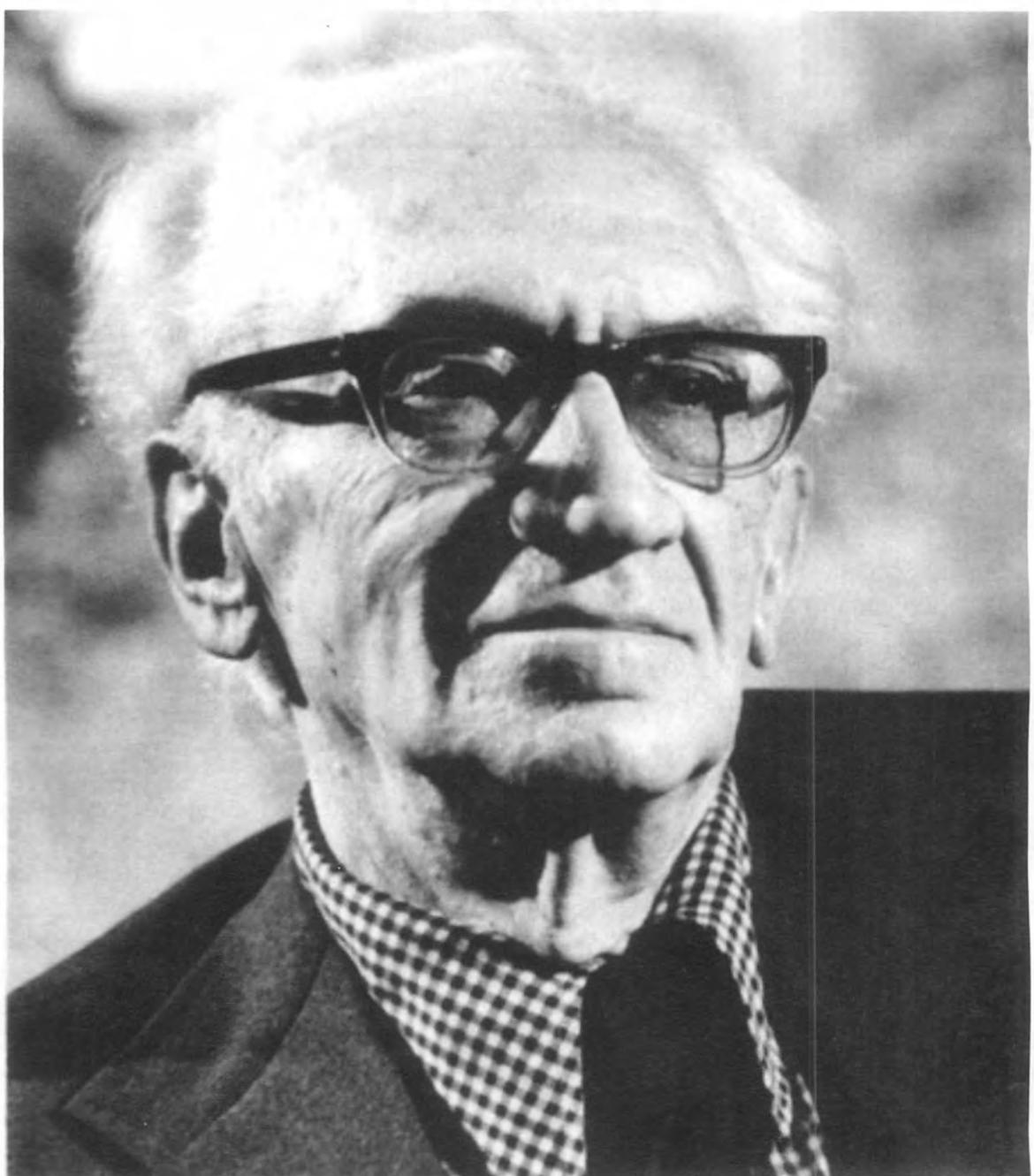
¹ I. Velikovsky, "The Pitfalls of Radiocarbon Dating," *Pensée* IVR IV (Spring-Summer 1973), p. 13.

² *Idem*, "On Saturn and the Flood," *KRONOS* V:1 (Fall 1979), pp. 6-7; *idem*, *Mankind in Amnesia* (N. Y., 1982), p. 99.

³ *Idem*, "On Saturn and the Flood" (see above), p. 6.

⁴ *Ibid.*

⁵ R. E. Juergens, "Juergens Replies" to "The Critics and Stellar Energy," *SIS Review* II:2 (December 1977), p. 50.



Immanuel Velikovsky
(Photograph—1974—by Donna Foster Roizen)

the ingredient we are presently concerned with, we will have to allot the various celestial combats intimated in the above myths to some other, and later, Saturnian disruption.¹ Besides, as we noted in our previous chapter, no perpetrator, no antagonist, is encountered in the records concerning the emission of light which heralded Creation. There was no other deity to attack or clash with Saturn. On the contrary, as we have seen, the god who is said to have emitted the light was almost universally described as having been alone. Velikovsky missed this point because, as already stated, he failed to recognize proto-Saturn's flare-up as the *fiat lux* of *Genesis*. Had he done so, he would have been on firmer ground. Instead, he saw in this explosion of proto-Saturnian light the cause behind the Universal Deluge.² Basing his deductions on the Old Testament, he concluded that proto-Saturn's flare-up occurred seven days before the waters of the Deluge hit Earth—a topic to which we shall return in its proper chronological place in a future volume. In the meantime, in view of Velikovsky's claim that the flare-up under discussion was due to Saturn's outburst as a nova, and in order to leave no stone unturned, we shall turn our attention to the nature of novae and supernovae.

NOVAE AND SUPERNOVAE

The name *stella nova*, that is “new star,” was coined to describe stellar flares in pre-telescopic days when it was still believed that such stars came into sudden existence only to disappear again without a trace. “Sometimes where nothing was seen before, we witness the sudden and unexpected appearance of a star destined perhaps to outshine all the others in the sky before dropping back into obscurity,” a 1966 encyclopedia tells us. “At one time the bursting of a nova, as it is called, would be greeted by the populace with much trepidation, but nowadays it merely provides astronomers with a great many interesting problems.”³

Although some novae dim in a matter of months, others have been known to take as much as 20 to 30 years to revert to their original dimness.⁴ One of the finest examples of the twentieth century was Nova Aquilae which, on June 7, 1918, suddenly exploded in an outburst which increased its brightness from magnitude 11 to magnitude 6 in the same evening, and to magnitude 1 by the following evening. It continued to brighten until, for a few hours during the night of June 9/10, it attained a magnitude of -1.4 when it outshone every other star visible at the time. Its brightness was calculated to have increased 70,000 times in just three days. Its splendor, however, was short-lived and, thereafter, it continued to fade night after night. Even so, it did not reach its original low magnitude until six years later in 1924.⁵

¹ The mytho-historical evidence that Velikovsky himself used to uphold his claim include some mythological identities that he would not have proposed were it not for the fact that the lack of data forced him to them. Thus, Isis is identified by him both as the planet Venus and as Jupiter (*Worlds in Collision*, p. 74; “On Saturn and the Flood,” p. 6). He then did likewise with Horus, the son of Isis and Osiris (“Saturn and the Flood,” *loc. cit.*; *Worlds in Collision*, p. 174). But no clash between Osiris/Saturn and Isis or Horus is met with in Egyptian mythology. Nor can the identification of Isis as the planet Jupiter be validated through any means.

² See references #1 & #2.

³ L. Rudaux & G. de Vaucouleurs, *Larousse Encyclopedia of Astronomy* (London, 1966), p. 10.

⁴ *Ibid.*, p. 328.

⁵ *Ibid.*, pp. 328-329.

Special types of novae, which astronomers define as distinctly different from normal ones,¹ are called supernovae because the extent of their outbursts may reach anywhere from 10 to 100 million times that of the Sun.² One of the most remarkable of these supernovae was that which appeared in October of 1572 and was carefully studied by the Danish astronomer Tycho Brahe. At maximum, it outshone the planet Venus and was visible in broad daylight.³ Thirty-two years later, in 1604, another supernova made its appearance in the stellar constellation Ophiuchus. It was observed by Johannes Kepler who described it as having been brighter than Jupiter.⁴ But perhaps the most famous of all was the supernova which was observed by Chinese and Japanese astronomers in 1054. The remains of this super-explosion can still be seen in our night-time sky to this day in the form of the Crab Nebula.⁵

"It has been calculated from the light curves that during the few months that it is visible, a typical supernova radiates as much energy as the Sun dispenses in several million years.

"Language is inadequate to describe such a flood of energy: the best we can do is cite examples based upon the above figures. Thus a supernova appearing in our own Galaxy at a distance of 10 parsecs (33 lightyears) would have an apparent magnitude equal to its absolute magnitude; in other words, although it would appear as a dimensional stellar point, its brightness at maximum would be 10 times that of the full Moon, *and it would turn the night into day.*"⁶

Or, as Alexei Filippenko put it: "Some of these so-called supernovae release as much energy in one second as all the other stars in the observable part of the universe."⁷ Some of these have recently been detected "popping off like fireworks" in Arp 229, which is believed to consist of a pair of colliding galaxies. Arp 229 has now been dubbed a "supernova factory."⁸

Moreover, as if supernovae were not enough, by 2003 astronomers were talking glibly about hypernovae—"superenergetic stellar explosions, each packing tens or hundreds of times the power of a 'regular' core-collapse supernova."⁹ M82 in the constellation Ursa Major is now believed to "play host" to a vast number of these hypernovae, explosions from which have been occurring "within the last few million years."¹⁰ Even so, to be sure, not all astronomers are of one mind over this. As Roger Chevalier cautioned, "there are still a lot of

¹ *Ibid.*, pp. 331-334.

² *Ibid.*, p. 333.

³ *Ibid.*

⁴ *Ibid.*, p. 334.

⁵ *Ibid.*

⁶ *Ibid.*, p. 333 (emphasis added).

⁷ A. V. Filippenko, "When Stars Explode," *Astronomy* (February 2003), p. 42.

⁸ D. Tytell, "'Supernova Factory' in a Newborn Globular Cluster," *Sky & Telescope* (September 2003), p. 18.

⁹ J. Roth, "A Hive of Hypernovae?" *Sky & Telescope* (February 2003), p. 22.

¹⁰ *Ibid.*

uncertainties" concerning the different mix of elements which these supposed hypernovae emit and which supposedly differentiates them from ordinary supernovae.¹

Such super-energetic flares would have disastrous effects on Earth if occurring relatively nearby. As already noted, however, Velikovsky did not describe proto-Saturn's flare-up as a supernova, but simply as a nova, a much lower class of stellar disruption. Nevertheless, at close proximity to Earth, the light emitted by proto-Saturn would still have appeared a thousand times more brilliant than that of the Sun. Why, then, did the flare-up not annihilate proto-Saturn?

RECURRING NOVAE

At one time it was believed that novae were caused by the collision of two stars both of which would be demolished in the process.² But then it was discovered that, after the light of a nova died down, the original stars still retained their places in the blackness of space. This was exemplified through the antics exhibited by an even more specialized type—the so-called recurring novae. As their name implies, these are stars that flare up more than once.

"Thus the nova T Coronae of 1866 reappeared in 1946, repeating almost exactly its behaviour of 80 years previously, while nova T Sagittae of 1913 likewise gave a repeat performance in 1946. RS Ophiuci has also been observed at two maxima (though these were admittedly unequal), in 1901 and 1933, and U Scorpii has been observed at three—1862, 1906 and 1936. Lastly, T Pyxidis has already [by 1966] exhibited four well-observed outbursts, in 1890, 1902, 1920 and 1945."³

This well illustrates the non-annihilation of stars during flare-ups since, needless to say, an entirely destroyed star could not flare up again. It was thus theorized that only the outer gases were expelled in these outbursts and that each emitting star, although obviously somewhat shrunken in mass, remained intact. Even in the Crab Nebula, the star that gave it birth through its outburst remains distinctly visible to this day. There is therefore nothing improbable about the continued survival of proto-Saturn following its flare-up.

SURVIVABILITY OF PARTNERS

Since the immense emptiness of interstellar space would make the chance of stellar encounters close to negligible, the *physical* collision between two stars was ruled out as the cause of such abnormal outbursts.⁴ This can be especially emphasized when it is remembered that, even in 1966, from 20 to 30 novae had been calculated to flare up annually.⁵ Besides,

¹ *Ibid.*

² L. Rudaux & G. de Vaucouleurs, *op. cit.*, p. 331.

³ *Ibid.*, p. 330.

⁴ *Ibid.*, p. 331.

⁵ *Ibid.*, p. 330.

the phenomenon of recurrent novae also removes the possibility of direct physical collision since it would be ridiculous to maintain that the same stars, and so many of them, are repeatedly involved in such celestial encounters. The cause of these flare-ups, both novae and supernovae, had to be sought elsewhere. In 1966, this cause was still elusive.

"The origin of the nova-phenomenon [as well as that of the supernova] must without doubt be looked for within the star itself, *even though the precise mechanism of the outbursts is at present still unknown.*"¹

Although it was soon discovered that stars that flare up were members of a binary system, the exact cause of their outbursts remained a mystery.

In the meantime, despite the fact that proto-Saturn would not have been as massive as a star, at close proximity the flare-up should still have been a little too close for comfort. How, then, did *Earth* escape annihilation? Once again we look to supernovae to see what is believed to happen to those bodies whose stellar partners tend to flare up.

The long-term timing of the oscillations emitted by pulsars, which is what the remnant stars of supernovae are called, led astronomers to believe "that these objects may have one or more small planetary companions."² During the 1980s, Carl Sagan could already conceive the possibility that "a planet could survive the evolution of a star into a pulsar"³—that is, survive the explosion emitted by a supernova.

A stellar outburst, dubbed SN1987a, appeared in the Large Magellanic Cloud during that year. Astronomers, however, had to wait two years for the star that gave it birth to appear as a pulsar. When it did, a problem surfaced with it. The star was pulsing at about 2,000 times a second. At one pulse per revolution, this meant that, at its equator, the pulsar was rotating at more than one-third the speed of light. At such speed the pulsar should have flown apart. Joseph Taylor then suggested that the blips might be coming once every half-revolution, which would imply that the pulsar was spinning "at an acceptable rate of once per millisecond." Jerome Kristian did not agree, arguing that the pulses, in such a case, should differ slightly, whereas they were noted to be identical. Additionally, the pulse frequency varied "almost imperceptibly" in a regular pattern. One possible explanation for this, according to Sam Flamsteed, would be a Jupiter-sized body orbiting the pulsar "at close range." Were that the case, the object's gravity would cause the pulsar to wobble, and this, in turn, would cause the variance in the pulse frequency⁴—which is the well-known Doppler effect through which extra-solar planets are now being detected.

By 1994, such claims had become common. Thus two Russian astronomers claimed that the pulsar from a supernova dated to have occurred 5 million years ago harbored not one, but two planets orbiting around it. If these planets are real, it has been theorized, they must have existed before the explosion and survived it.⁵

¹ *Ibid.*, p. 331 (emphasis added).

² C. Sagan, *Cosmos* (N. Y., 1983), p. 239.

³ *Ibid.*

⁴ S. Flamsteed, "Birth of a Pulsar," *Discover* (May 1989), p. 26.

⁵ *New scientist* (March 19, 1994), pp. 32-35.

Periodic variations in the pulses of another pulsar, 3,000 light-years away in the constellation Virgo, have also been detected by Alexander Wolszczan. And he, too, has claimed that the variations are caused by planets orbiting the pulsar—three of them this time. The lesser planet has been calculated to be of the mass of the Moon, with the other two about three times more massive than Earth. These two are claimed to orbit the pulsar at about one-third and one-half the Earth-sun distance, respectively. “All three planets are probably rocky worlds like Earth, but without an atmosphere.”¹

All of which tends to show that planetary companions of stars that flare up are not necessarily believed to be obliterated by the eruption. Planetary companions of bodies of less than stellar masses should therefore survive all that much easier. So that, even at close proximity, Earth’s survival as a planetary body in the wake of proto-Saturn’s flare-up should not be viewed as having been beyond astronomical feasibility.

We have, of course, been arguing that what applies to supernovae should apply to proto-Saturn. The flare-up of our proto-Saturnian body, however, can hardly be classed as a supernova. Even Velikovsky’s claim that it was a nova is something of an exaggeration. In the past, I myself have shied away from alluding to proto-Saturn’s flare-up as a nova, having instead chosen to clarify it as “nova-like.” Today I prefer to use the simpler term of “flare-up.” Our own claim, of course, is that proto-Saturn had been a sub-brown dwarf star, but, as already noted, the demarcation between sub-brown dwarfs and gaseous planets remains somewhat arbitrary. Leaving novae and supernovae aside, we should therefore investigate the possibility of *planetary* flare-ups—and this, too, is not new to orthodox astronomy.

THE EXPLODING PLANET THEORY

Debates concerning whether the Solar System has retained its present formation since its inception have been going on for some time. One of these centered around the planetary orbital spacing which has long been tied to the Titius-Bode Law which claims that planetary orbital distances follow a mathematical formula. The formula itself was derived by Daniel Titius in 1772 who discovered that if we take the number 3, double it, then double the result, and keep on doubling in that manner, we end up with the series 3, 6, 12, 24, 48, 96 and so on. Adding 4 to each of these numbers results in the series 7, 10, 16, 28, 52, 100, etc. If we then divide each of these numbers by 10, we finally end up with 7, 1, 1.6, 2.8, 5.2, 10, and so forth. This final series turns out to be in fair agreement with the actual *mean* distance of each planet in astronomical units² as we move outward from the Sun—Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. Where this law was at first thought to fail was in its fourth placement, since there is no planet to be found at 2.8 astronomical units from the Sun. But when the asteroid belt was discovered between Mars and Jupiter close enough to this position, the law was engraved in stone. The problem, of course, is that it actually breaks completely down when it comes to Neptune and Pluto which fail to conform to it.

¹ R. Naeye, “The Pull of Planets,” *Discover* (January 1995), pp. 34-35.

² One astronomical unit, abbreviated as “a.u.,” is the *mean* distance of Earth from the Sun, calculated at approximately 93 million miles.

In 1968, A. M. Molchanov claimed that the Titius-Bode Law was the result of orbital resonances and that it could not be of primeval origin.¹ Mathematically, a resonance is an even or integral relationship between any two motions. The best example is that of the Moon which rotates once in the same time it takes to revolve around Earth. Another example is that of the asteroid Toro which completes five revolutions around the Sun in almost exactly the time it takes Earth to revolve eight times on its own orbit.

S. F. Dermot next claimed that resonances *do* trace back to the early systems and that, in any case, they are not the dominant influence in establishing the Titius-Bode Law.²

For those who disagreed, the question then revolved on whether planets in random orbits could achieve resonant orbital spacing in a time that would be less than the calculated age of the Solar System. In 1970, through a computerized model, J. G. Hills showed exactly that. As his computerized system indicated, “arbitrary planetary configurations, started with purely random initial positions and velocities, tend, *during a few thousand to a few hundred thousand subsequent years*, to ‘relax’ into a Bode’s-law type of *resonant* configuration.”³ In fact, this phenomenon was actually foreseen by Ernest Brown as early as 1931.⁴ As Robert Bass noted, what this implies is that it *is* possible for randomly spaced bodies to relax into a stable configuration similar to that implied by the Titius-Bode Law *even in a few centuries*.⁵

Fair enough, the computerized planetary system that relaxed the fastest for Hills was composed of the Sun with only four planets, each about ten times the mass of Jupiter, which is hardly a picture of the present Solar System. Meanwhile, in 1974, Michael Ovenden reached a conclusion identical to Molchanov’s in that “the present distribution of the planetary and satellite orbits is the result of mutual perturbations,” concluding that “the present distribution gives no information concerning the origin of the solar system.”⁶

In an attempt to solve the problem once and for all, Ovenden devised the Principle of Least Interaction Action—which we need not go into for the purpose of this work. While this Principle worked beautifully in “explaining” the present orbits of bodies with which we are not presently concerned,⁷ it failed in predicting the present orbits of the Jovian planets. Ovenden could only save his Principle by postulating the one-time existence of an additional massive object *and then getting rid of it at some point in time*.

In a letter he published in *Nature*, Ovenden spoke of this “additional massive object” as a 90-Earth-mass *ring of material* which he simply referred to as “A.” As he himself stated:

¹ A. M. Molchanov, “The Resonant Structure of the Solar System,” *Icarus* 8 (1968), p. 203.

² S. F. Dermot, “On the Origin of Commensurabilities in the Solar System,” Part III, *Monthly Notices of the Royal Astronomical Society* 142 (1969), p. 143.

³ R. W. Bass, “Did Worlds Collide?” *Pensée* IVR VIII (Summer 1974), p. 11 (emphasis added).

⁴ E. W. Brown, “Observation and Gravitational Theory in the Solar System,” *Publications of the Astronomical Society of the Pacific*, 44 (1932), pp. 21-40.

⁵ R. W. Bass, *op. cit.*, pp. 9, 11.

⁶ M. W. Ovenden, “Bode’s Law—Truth or Consequences?” *Vistas in Astronomy* 16 (1975) Kepler Memorial Volume.

⁷ *Idem*, “Planetary Distances and the Missing Planet,” in B. D. Tapley & V. Szebehely (Eds.), *Recent Advances in Dynamical Astronomy* (Dordrecht, 1973), pp. 323-326.

"From the point of view of the dynamical arguments presented...it is probably true that A was always in the form of a ring."¹

At the very time that *Nature* received Ovenden's letter, but before it was published, Ovenden himself was in Cortina d'Ampezzo, Italy, participating in the 1972 NATO Advanced Study Institute in Dynamical Astronomy. It was in the paper he read there, an expansion of the letter he had sent to *Nature*, that Ovenden displayed dissatisfaction with the form of his 90 Earth-mass ring of material. As he stated on that occasion:

"If the mass of A did indeed disperse suddenly, the hypothesis of a single original planet is more attractive than that of a ring; *while we may know of no mechanism whereby a planet might 'explode' with sufficient violence to disperse 99.9% of its mass*, it seems even harder to understand why a ring of matter should have existed undisturbed for 4.5×10^9 yr, and then suddenly dissipate 1.6×10^7 yr ago."²

He then whimsically asked: "If the object A had been a planet, what was its name?" Availing himself of the privilege of discovery, he there and then bestowed on this *iffy* "non-existent object" the name of Aztex.³

This event was placed by Ovenden at 16 million (1.6×10^7) years ago. He also calculated that it would take another 280 million (2.8×10^8) years for the Solar System to reach equilibrium (thus allowing the Principle of Least Interaction Action to fulfil itself).

THE TROUBLE WITH AZTEX

We notice in the above that the "immense physical difficulties" involved did not stop Ovenden from postulating the near-annihilation (99.9%) of a 90 Earth-mass object. I stress this because I want to impress upon my readers that conventional astronomers are not averse to postulating events even when the laws of celestial mechanics seem to be against them. We notice also that, according to Ovenden, the present near-equilibrium of the Solar System is not its final stage—that, in fact, the Solar System is still adjusting to a relatively recent cosmic catastrophe. Fair enough, an event which supposedly occurred 16 million years ago is hardly "recent" by neo-catastrophic standards. But let us not get carried away just yet, for there is more to come.

It is, however, the explosion of the hypothesized planet that has kept Ovenden's Principle from becoming widely accepted. Robert Bass acknowledged this when he wrote:

"Although...I regard Ovenden's Principle as irrefutably valid, it has become somewhat controversial and has been sharply questioned by several astronomers, *mainly, I would assume, because Ovenden has used the principle to 'prove' that there must have once been a Saturn-type planet (90 Earth-masses) in the asteroid belt which somehow has been destroyed.*"⁴

¹ *Idem*, "Bode's Law and the Missing Planet," *Nature*, 239 (October 27, 1972), p. 509.

² *Ibid.*, p. 332 (emphasis added).

³ *Ibid.* (emphasis added).

⁴ R. W. Bass, "Can Worlds Collide?" *KRONOS* I:3 (Fall 1975), p. 69 (emphasis added).

VAN FLANDERN'S MODIFICATION

In the early 1980s Tom Van Flandern carried on from where Ovenden had left off. He commenced by sweeping one of Ovenden's problems aside with the proverbial stroke of the pen. Since only approximately 0.1 Earth-mass presently resides in the asteroid belt, which is supposed to contain the remnant debris of the exploded planet, it had yet to be shown what happened to the other 89.9 Earth-masses of the original planet. According to Van Flandern, "the exploded debris would have been destroyed by collisions with Jupiter and other planets or [would] have picked up enough velocity to go flying out of the solar system."¹ It has apparently been calculated that, other than what remains in the asteroid belt, this debris would have been completely gone in a mere "100,000 years or so."²

Ovenden's bigger problem, however, remained unsolved. As Van Flandern himself was content to state:

"It is unsettling to conclude that planets can explode. After all, we live on a planet ourselves and are totally dependent upon it for survival. *Unfortunately we have almost no evidence at all as to what caused the explosion.* Consequently, it is impossible right now to know whether the missing planet was uniquely unstable or whether our own planet could one day share its fate."³

As with Ovenden, this deficiency did not keep Van Flandern from accepting that a planet did explode. He also stated that, other than the surviving asteroids, "the only other remaining debris that we have any chance of seeing today would be objects hurled to great distances from the Sun but eventually pulled back by its gravity."⁴ He then added: "Only one kind of celestial object matches that description perfectly—the comet."⁵ Thus, regardless of what else has been written about these intriguing sky wanderers, Van Flandern believes that the comets were born when Ovenden's planet Aztec exploded. (One amazing fact, here, is that Velikovsky was ridiculed when, expressing concurrence with ancient opinion, he, too, had claimed that comets were born from planets.⁶) Van Flandern went on with:

"Most amazing of all, those [comets] that are visiting us for the first time since their birth are traveling in orbits that took them around the Sun in just 4 million years. We therefore know that they were born just that many years ago, *which tells us when the planetary explosion took place.*

"A great deal of other evidence also supports the 'recent' explosion hypothesis. By

¹ T. Van Flandern, "Exploding Planets," *Science Digest* (April 1982), p. 94.

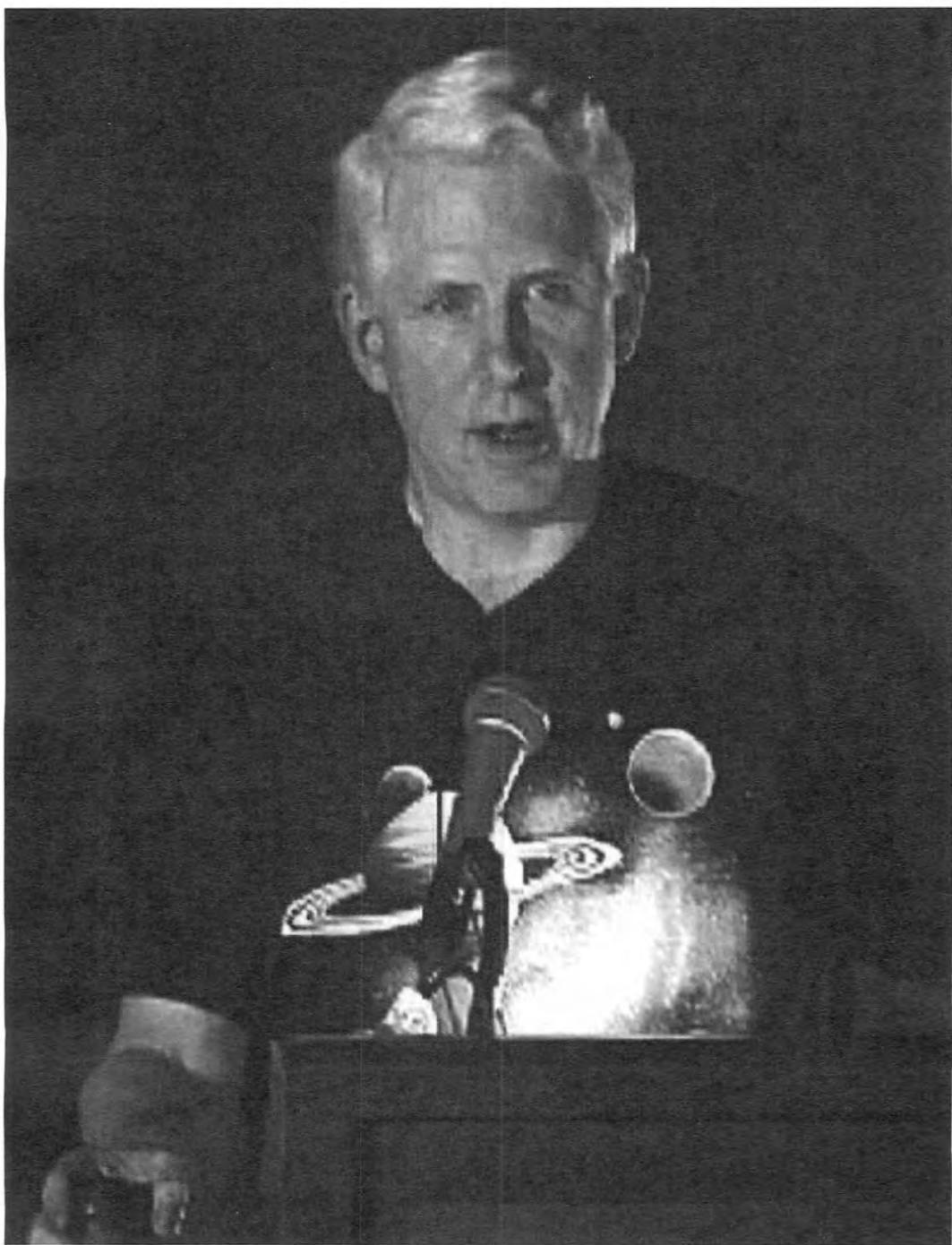
² *Ibid.*

³ *Ibid.* (emphasis added).

⁴ *Ibid.*

⁵ *Ibid.*

⁶ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), p. 271.



Tom Van Flandern
(Photograph—2000—by Wallace Thornhill.)

applying the laws of gravitation to comets we can trace their orbits back in time. When we do, we find that comets all seem to have originated from a common point between Mars and Jupiter [where the explosion supposedly took place] 4 million years ago.”¹

Four million years ago is quite a reduction from Ovenden’s original 16 million. As Van Flandern himself saw fit to remind us, four million years ago “the earliest humanlike primates” had already appeared on Earth.²

Even so, can the retrocalculation of cometary orbits be relied upon? As Ovenden himself had remarked:

“...if it can be shown that processes operate within the solar system that can rearrange the planetary orbits *on a sufficiently short time-scale* then we must conclude that the present distribution of planetary and satellite orbits contains *no information* about conditions at the time of formation of the solar system.”³

This was expanded on by Archie Roy, who had collaborated with Ovenden,⁴ when he wrote:

“We have seen that the work of J. G. Hills and M. W. Ovenden demonstrated that after a short period of wild behaviour, a planetary system could settle down into a distribution of orbits very similar to a commensurable Bode-type configuration. Such a configuration would, under the action of other forces such as tidal friction, nudge the system into a neighbouring truly stable configuration, which on inspection might be thought to have been the system’s state for a very long time. *Indeed numerical integrations backward in time could take the system, still well behaved, through the episode of wild behaviour as if it had never been.*”⁵

Actually, back in 1953, W. M. Smart had already understood that such “perturbation series” could not be relied upon except for a very short time—“*one or two centuries*” to be exact.⁶

If this applies to planets and satellites, it must surely also apply to comets.⁷ But let this be for the time being; we shall return to it in a while.

¹ T. Van Flandern, *loc. cit* (emphasis added).

² *Ibid.*, p. 78.

³ M. W. Ovenden (see reference #38), p. 479 (emphasis as given).

⁴ A. E. Roy & M. W. Ovenden, “On the Occurrence of Commensurable Mean Motions in the Solar System,” *Monthly Notices of the Royal Astronomical Society*, 114 (1954), pp. 232-241; *idem*, “The Mirror Theorem,” in *ibid.*, 115 (1955), pp. 296-309.

⁵ A. E. Roy, *Orbital Motion* (Bristol, 1978), p. 244.

⁶ W. M. Smart, *Celestial Mechanics* (London, 1953), pp. 4, 194-195, 198.

⁷ For more on the unreliability of retrograde calculations see D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 184-186.

A COMPARISON OF MODELS

In the meantime, Van Flandern's four million years is still a far cry from the few thousand years required by our proto-Saturnian model, while his "earliest humanlike primates" can hardly pass for the ancient recorders of cosmic history we have been relying upon to reconstruct proto-Saturn's flare-up. And yet, Van Flandern's own scenario does come close to ours on several counts. Consider the following:

In our case, proto-Saturn is presented as a sun-like body that dominated the ancient sky. In Van Flandern's case, the exploded planet had, with the exception of Jupiter, been larger than the other planets, as it orbited the Sun between Jupiter and Mars. Because of its size and closeness to Earth, it dominated the night sky with its brilliance, bright enough to have been seen during the day.¹

In following Velikovsky, the sun-like proto-Saturn flared up in nova-like brilliance, hurling its debris in all directions. According to Van Flandern:

"...suddenly [the planet] explodes. Now its brightness outshines even the Sun's. Like a nova...the dying planet hurls its mass in the form of solid, liquid and gaseous debris in all directions at extraordinarily high velocities. In a few months, the leading edge of the blast reaches our planet."²

Following the proto-Saturnian disruption of our competing scenario, neither heaven nor Earth could have remained the same. The initial outburst of light from proto-Saturn's flare-up would have all but blinded those unfortunate individuals who might have been staring directly at it. Its debris would have bombarded our ancestors and the event, as already mentioned, would have left us all scarred unto this day. Van Flandern writes:

"What a sight it must have been for early man: the sky ablaze with meteors, night and day for months, and comets streaming among the stars. Many thousands of years would pass before the heavens would return to a more normal state. But even then the earth would never again be the same."³

A conclusion reached by David Talbott, with which we heartily concur, is that the proto-Saturnian phenomenon lies at the very root of human advancement and the flowering of civilization.⁴ And Van Flandern asks: "Is it only a coincidence that humanity felt its early stirrings at about the time of the great explosion?"⁵

No—Van Flandern's scenario cannot be said to be identical to ours; but, at the risk of sounding boorish, it comes damned close.

¹ T. Van Flandern, *op. cit.*, pp. 78-81.

² *Ibid.*, p. 81.

³ *Ibid.*

⁴ D. Talbott, "Guidelines to the Saturn Myth," *KRONOS* X:3 (Summer 1985), pp. 43-45.

⁵ T. Van Flandern, *op. cit.*, p. 95.

EPOCHAL ADJUSTMENT

But those four million years difference!

And yet, as I asked in mischief in 1986,¹ if Van Flandern can reduce Ovenden's 16 million years to just four, who can guarantee that someone will not yet reduce the four to one or even to only a few thousand?

As it turned out, by 1993 it was Van Flandern himself who reduced his original 4 to 3.2 million years ago.² By then he was also suggesting that Mars may have been a satellite of the destroyed planet.³ And, as if the explosion of one planet was not difficult enough to account for, he climbed further out on this slim limb by hypothesizing that there had probably been *two or more* such planets in the Solar System that blew up.⁴

"Many lines of evidence suggest more than one planetary explosion in the solar system's history. The discovery of one, and probably two, new asteroid belts orbiting the Sun beyond Neptune is especially suggestive, given that the main asteroid belt is apparently of exploded planet origin."⁵

And:

"Meteorites provide direct evidence about their parent bodies. Yet this evidence strongly indicates at least 3-4 distinct parent bodies."⁶

But what, then, of the retrocalculation of cometary orbits which had confirmed that they had gone around the Sun in four million years, and that they "all seem to have originated from a common point between Mars and Jupiter 4 million years ago"?

The answer to that one was easy enough. Newer calculations showed that the age of short period comets is actually 3.2 million years,⁷ which is what forced Van Flandern to lower his original date.

MULTIPLE EXPLOSIONS

In the end, of course, Van Flandern *had* to reach the conclusion that he did. Burdened as he was with his belief that the asteroids, on the one hand, and short-period comets, on the other, were the debris of planetary outbursts, the explosion of more than just one planet was

¹ D. Cardona, "The Trouble With Aztex," *KRONOS* XI:2 (Winter 1986), p. 36.

² T. Van Flandern, *Dark Matter, Missing Planets & New Comets* (Berkeley, 1993), pp. 187-188.

³ *Ibid.*, pp. 277-278; see also "New Scenarios for Solar System Evolution," *SIS Internet Digest* (1999:2), p. 10; *Idem*, "The Exploded Planet Hypothesis—2000," *New Scenarios on the Evolution of the Solar System and Consequences on History of Earth and Man* (University of Bergamo, 1999), pp. 45, 46.

⁴ *Ibid.*, p. 41.

⁵ *Ibid.*, p. 43.

⁶ *Ibid.*

⁷ *Ibid.*, p. 45.

actually forced upon him. This was made all the more evident—at least to him—by hints of other asteroidal belts besides the main one between Jupiter and Mars. Consistency dictated that if one asteroid belt owed its origin to an exploded planet, so must the others. Concerning the main asteroid belt, he wrote:

“Although over 10,000 asteroids have well-determined orbits, the combined mass of all other asteroids is not as great as that of the largest asteroid, Ceres. That makes the total mass of the asteroid belt only about 0.001 of the mass of the Earth. A frequently asked question is, if a major planet exploded, where is the rest of its mass?”¹

His answer to this was that while shattered surface and crustal rocks would still be rocky fragments, rocks from greater depths would be under so much pressure that, when suddenly released into the near-vacuum of space, they would simply vaporize. To give the example he gave, “over 99%” of an Earth-mass planet would be destroyed in this manner. What is left would be the 0.001 Earth-mass of the asteroids. “The situation,” he went on, “worsens for a larger planet, where the interior pressures and temperatures get higher more quickly with depth.”²

With comets, still according to him, it would be different. As he himself claimed, “we can estimate the total mass of the body that exploded to produce all the comets seen today.” And that estimate lead him to the conclusion that the mass of the parent body that produced the comets “is almost certainly less than the size of our Moon...”³

“Putting all this evidence together [he wrote], we have strong hints for two original planets near what is now the main asteroid belt: hypothetical ‘Planet V’ and ‘Planet K.’ These were probably gas giant planets with moons of significant size, such as Mars, before they exploded. We have hints of two more asteroid belts, probably from the explosions of two more planets (‘Planet T’ and ‘Planet X’) beyond Neptune. And we have hints for two extra-large gas giant planets, ‘Planet A’ and ‘Planet B,’ that exploded back near the solar system beginning.”⁴

How does all this add up? As Van Flandern had previously told us, retrocalculated orbits place the origin of short-period comets in the asteroid belt. But the planet that exploded to give birth to these comets could not have been more massive than the Moon. Likewise with the one which supposedly produced the asteroids. As he himself claimed, “asteroid belts with masses of order 0.001 Earth masses are the norm *when terrestrial-planet-sized bodies explode.*”⁵ As is well accepted, 0.001 Earth-mass is the mass of the asteroids in the Solar System’s main asteroid belt. The exploded planet that gave birth to these asteroids must have therefore been a terrestrial-sized planet. How, then, does he reconcile these sizes with the two giant gas planets he ended up placing in the vicinity of the asteroid belt?

¹ *Ibid.*, p. 41.

² *Ibid.*

³ *Ibid.*, p. 43.

⁴ *Ibid.*, p. 51 (emphasis added).

⁵ *Ibid.*, p. 41 (emphasis added).

One way out of this problem would be to suggest that the Moon- and Earth-mass objects had formed the cores of the two gas giants. In fact, it is now believed that the cores of Jupiter and Saturn are much smaller than previously believed.¹ But, even then, in order to hold on to their massive atmospheres, these cores could not be smaller than 3 to 10 Earth-masses.² So how could a Moon- or Earth-mass body hold on to such atmospheres? Besides, why would one planet explode to produce asteroids, while another exploded to produce comets? Also, did he not himself also tell us that gas giants “would be expected to leave no asteroids if they exploded.”³ But, worst of all, it is bad enough to burden one planet with an unknown explosive mechanism, but to burden *six* of them, and then have them explode in pairs in or near the same locality is stretching an untested model way too far.

ONE SOLUTION TO THE PROBLEM

Let us, however, leave the above problems alone and concentrate on those 3.2 million years ago. These 3.2 million years are still nowhere close to the few thousand required by our thesis. But, as I noted in 1986,⁴ let me not disregard Van Flandern’s 4 (or 3.2) million years—for I can also accommodate *them*. As I reported in 1983, “there is corroborating evidence which implies that [proto-]Saturn was disrupted more than once.” And if ancient man remembers more than one Saturnian catastrophe, “there is a possibility that further [proto]Saturnian disasters had occurred *prior to the advent of humankind itself*.”⁵

What, then, is there against one of these earlier catastrophes having occurred 4 or 3.2 million years ago? What is there against one of them having occurred *16 million* years ago, as Ovenden originally claimed? And earlier still? Did I not also suggest that “therein might lie the answer to the great extinctions of life at the Cretaceous-Tertiary boundary and the annihilation of the dinosaurs”⁶?

As we have seen, Ovenden’s original postulate called for a ring of material rather than a planet. The change of his 90 Earth-mass object from a ring to a planet was *forced* upon him because he could not see how or why such a ring should suddenly disperse. The problem, however, is not even slightly minimized because, as Ovenden himself confessed, there is no known mechanism whereby a planet can explode. Even Van Flandern had to accede to this when he reported that “some scientists maintain that *no known process* can explain how planets could get enough energy to explode.”⁷ Among these scientists one can name Hannes Alfvén and Gustaf Arrhenius who were vehement in stating that: “It is not generally realized that there are no known processes by which such large bodies can be blown apart...”⁸ As

¹ “New Boost for One-Step Giant Planet Formation Theory,” *Eureka Alert* (Internet news release, June 19, 1997).

² *Ibid.*

³ T. Van Flandern, *loc. cit.*

⁴ D. Cardona, *loc. cit.*

⁵ *Idem*, “Saturn’s Flare-Ups,” *SIS Workshop* 5:1 (April 1983), pp. 8-9 (emphasis in original).

⁶ *Ibid.*, p. 9.

⁷ T. Van Flandern, “Exploding Planets,” *Science Digest* (April 1982), p. 94 (emphasis added).

⁸ H. Alfvén & G. Arrhenius, *Evolution of the Solar System* (Washington, D. C., 1976), p. 410.

they add: "It is doubtful if a body larger than about a thousand kilometers in size can ever be blown apart by collision with another body in the solar system."¹

To be fair, in 1999 Van Flandern did propose three possible mechanisms for such planetary disruptions. The first of these involved a phase change when planetary core temperatures and pressures reach a critical point, leading to a volume discontinuity. An Earth-sized planet in this condition would then either implode or explode "depending on whether the volume decreases or increases."² The second possible mechanism he proposed was nuclear fission due to natural fission reactors such as those discovered right here on Earth, and which would have been more energetic in the past.³ And the third concerns the unaccountable blockage of heat flow from the continually regenerated gravitational field, which would disrupt the planet's equilibrium. "The energy excess in the interior of such a planet," he wrote, "would build indefinitely until either the insulating layer was breached or the planet blew itself apart."⁴ However, as Van Flandern himself confesses, these are nothing but "theoretical conjectures."⁵

When it comes to the asteroids, which both Ovenden and Van Flandern saw as the debris of their exploded planet, Alfvén and Arrhenius claim that this could not have been the case. As they indicate: "It is also clear from the spin distribution of asteroids that they cannot originate by explosion of much bigger bodies."⁶

So, likewise, when it comes to meteorites: "The accretion, *fragmentation and irradiation* record in meteorites clearly does not reflect processes taking place in the 'regolith' of a planet-size parent body, miraculously created and later exploded."⁷

Also, if Alfvén and Arrhenius are correct, rather than being the product of exploding planets, short period comets have accreted from meteoroids.⁸

"Planetary encounters of long-period meteoroids perturb their orbits into short-period, predominantly prograde orbits with lower eccentricities. These meteoroids are focused into short-period meteor streams, and short-period comets then accrete within these streams."⁹

If this is correct, short-period comets cannot be anywhere as old as Van Flandern calculates. "In striking contrast to the long lifetime of short-period meteoroids is the short lifetime of short-period comets, which according to observations is only 100-10,000 yr."¹⁰

¹ *Ibid.*, pp. 412-413.

² T. Van Flandern, "The Exploded Planet Hypothesis—2000," *New Scenarios on the Evolution of the Solar System and Consequences on History of Earth and Man* (University of Bergamo, 1999), p. 52.

³ *Ibid.*

⁴ *Ibid.*, pp. 52-53.

⁵ *Ibid.*, p. 52.

⁶ H. Alfvén & G. Arrhenius, *loc. cit.*

⁷ *Ibid.*, pp. 426, 486 (emphasis as given).

⁸ *Ibid.*, p. 329.

⁹ *Ibid.*

Conversely, Alan Stern is of exactly the opposite opinion in that comets, “though constructed of ancient material, cannot themselves be ancient.” Instead, claims Stern, “they must be ‘recently’ created chips” off larger objects which “formed as a result of violent impacts.” When it comes to short-period comets, this seems to be even more applicable. “This is truly a paradigm shift,” says Stern. “Many of the short-period comets we see aren’t even ancient!”² It is not, however, said what is meant by “ancient.”

Fair enough, with such contrasting views, all that can be said for certain is that not enough is yet known concerning the formation of comets, so that one may argue that Van Flandern may still be correct in this. Our own scenario, on the other hand, is not necessarily encumbered with the origin of comets so that, for the time being, we can leave this topic aside. But, despite Van Flandern’s own attempts, this would still leave the problem concerning the mechanism that would have caused Ovenden’s and Van Flandern’s planet(s) to explode. I am therefore being only *partly* mischievous when I ask: In view of Ovenden’s wavering between a ring and a planet, why not think of a ringed planet?

How would *this* get rid of the problem?

It is doubtful that a 90 Earth-mass planet, which is what Ovenden’s original postulate called for, would have been *entirely* solid. Nothing that massive exists in a totally rigid state in our Solar System. A Saturn-size planet, which is what a 90 Earth-mass planet amounts to, would probably have been akin to Saturn—in other words a gas giant as, indeed, Van Flandern himself proposed for *some* of his exploded planets. And since, despite some earlier disclaimers,³ Saturn is still more star-like than planet-like, a nova-like outburst is not only feasible, but so is a recurring one. Thus, in contradistinction to Van Flandern, *only one body is required*. The difference, as we have seen with novae and supernovae, is that gaseous bodies can flare up without annihilating themselves, where the emitted material would mainly be in gaseous form.

I am not sure how a recurring proto-Saturnian flare-up would fit Ovenden’s Principle of Least Interaction Action or whether this would satisfy his conclusion that the Solar System is still in the process of recovering from some past catastrophic event. Although it would have been reduced in mass, unlike Ovenden’s planet Aztex, or Van Flandern’s multiple planets, proto-Saturn did not annihilate itself. But with a change of mass to start with and some readjustments of orbits, with the addition of tidal friction and electric forces, a new set of calculations might yet justify the mytho-historic scenario. And while astronomers are not yet ready to admit it, in the end it is history that will carry the day.

¹ *Ibid.*, p. 330.

² “View of Comets as Pristine Relics of Solar System Formation Evolves,” *Southwest Research Institute (SwRI) News Release* (August 8, 2003).

³ K. Croswell, “Stars too Small to Burn,” *Astronomy* (April 1984), pp. 16-22.

Chapter 16

Narrowing the Gap

PLANETARY NOVAE

Mechanisms for planetary novae have been proposed by others besides Tom Van Flandern, although, unlike him, not to the extent of total annihilation. Among them, Frederic Jueneman has even proffered a method whereby Earth itself could have flared up in the far distant past. This, according to him, could have transpired at that time when our world was encumbered with a much heavier atmospheric envelope than at present,¹ a hypothesis that has also been offered by other theoreticians.² Referring to such an Earth as Pleionaea,³ Jueneman has even tentatively argued that a gradual cooling of our planet's atmosphere could have led to a "critical stage" in which "the metastable mixture of primordial carbon dioxide, hydrogen, and methane would lose its heterogeneous equilibrium and become unstable."⁴

"At such a time, the atmosphere, catalyzed by temperature, pressure, and airborne particulates, would ignite in an exothermic polymerization reaction. The resulting conflagration throughout the planetary air-mass would literally blow a considerable quantity of the atmospheric overburden into space, in effect causing a planetary nova."⁵

Evidence of extensive terrestrial conflagration comes from both the mytho-historical record⁶ and geological strata.⁷ Even so, the chances of such infernos having been caused by a universal combustion of the atmosphere is close to nil since such holocausts would probably have entailed the incineration of all life on Earth.

Eric Crew, who built on the previous work of Charles Bruce, on the other hand, invoked electricity for the ejection of voluminous matter from the cores of giant planets.⁸ In this the-

¹ F. B. Jueneman, "Pleionaea: A Myth For All Seasons," *AEON* II:3 (January 1991), p. 49.

² D. Norman, *Dinosaur!* (N. Y., 1991), pp. 74, 218; S. Menon, "Insects of the Oxygeniferous," *Discover* (September 1995), p. 32; I. C. Johnson, "Long Term Violation of Uniformitarianism Demonstrated by Fossil Discoveries in Polar Regions," *Chronology & Catastrophism Workshop* (1991:2), p. 21.

³ See here, D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 346, 348, 380, 385.

⁴ F. B. Jueneman, *loc. cit.*

⁵ *Ibid.*

⁶ See, for instance, Censorinus, *Liber de Die Natali*, xviii; Philo, *On the Eternity of the World*, 8; C. F. Volney, *New Researches on Ancient History* (1856), p. 157; H. C. Warren, *Buddhism in Translation* (1896), pp. 320 ff.; H. B. Alexander, *Latin American Mythology* (1920), p. 91; A. von Humboldt, *Researches Concerning the Institutions and Monuments of the Ancient Inhabitants of America*, Vol. II (1814), p. 16.

⁷ *New Scientist* (January 24, 1985), p. 35; B. Rensberger, "A Fiery Extinction," *Science Digest* (January 1986), p. 22.

⁸ E. W. Crew, "Orbits of Core Material Ejected from Gaseous Planets," *KRONOS* X:2 (Winter 1985), pp. 13 ff.

ory, the planet's core generates a high positive charge through the complex gravitationally-driven pressure ionization process. Crew's main aim for this proposal, however, was driven by his desire to account for Immanuel Velikovsky's hypothesis that the planet Venus was the ejected core of the planet Jupiter,¹ *with which this work does not concur*. Nevertheless, prior to his commitment to the Saturn thesis, Wallace Thornhill found much to commend in Crew's particular postulate. According to him, a planet experiencing the processes reasoned out by Crew "would undergo a nova phase."² More importantly, Thornhill was influenced by the electrical intimations of stellar novae which, at a later date, facilitated his acceptance of proto-Saturn's flare-up. As he wrote:

"There is interesting evidence that a nova is associated with an electric discharge as indicated by the broadening of the spectral lines from such an outburst. The broadening follows the lambda square law of the Zeeman (magnetic) effect and not the lambda law of the Doppler effect...Also, several novas have been observed to virtually extinguish around maximum brightness. This is easily explained by another of Bruce's laws which concerns the self-extinction of a discharge at maximum current due to the high pressures generated by it in the discharge channel."³

Needless to say, proto-Saturn was neither a full-fledged star nor yet a gaseous planet. As intimated in both this work and our previous one, despite the fine and still controversial line of demarcation, we have categorized it as a sub-brown dwarf. Are brown dwarf stars then known to flare?

COMETARY FLARE-UPS

Cosmic flare-ups have nothing to do with the size of the flaring bodies. Flares have even been associated with comets.⁴ The flare-up of Halley's comet which occurred between the orbits of Uranus and Saturn, and so much baffled astronomers, is now a matter of cometary history.⁵ "One suggestion for the outburst," noted Thornhill, "was a possible collision with a small asteroid, but the probability of such an occurrence was put at 2×10^{-18} or less."⁶ What is more likely is that, having spent most of its time in the outer regions of the Solar System, Halley's comet had achieved electrical equilibrium, which equilibrium was disrupted once it neared the Sun. The electric stress would then have exceeded its breakdown potential.

¹ I. Velikovsky, *Worlds in Collision* (N. Y., 1950), pp. 172 ff.

² W. Thornhill, "Formation of Chondritic Meteorites and the Solar System," *Chronology and Catastrophism Review*, Vol. X (1988), p. 53.

³ *Ibid.*

⁴ H. Alfvén & G. Arrhenius, *Evolution of the Solar System* (Washington, D. C., 1976), pp. 235-236.

⁵ P. Weissman, "Why Did Halley Hiccup?" *Nature* 353 (1991), p. 793.

⁶ W. Thornhill, "Evidence for the Extreme Youth of Venus," *Chronology and Catastrophism Review* (Special 1993 Issue), p. 94.

"It is significant that the flare-up followed some of the largest solar flares recorded. In this case, the Sun was altering the comet's electrical milieu at a greater distance than normal."¹

With stars at one end and comets at the other, we need to narrow the gap in order to accommodate something of the mass which once constituted the proto-Saturnian sun. It should, however, already be evident that if nova-like flares can be exhibited by bodies as massive as stars and as small as comets, brown dwarf stars should also be able to exhibit similar phenomena.

BROWN DWARF OUTBURSTS

That brown dwarfs have a tendency to brighten has been known since 1977 when the dark partner of the white dwarf known as AM Herculis suddenly flared.² It was, therefore, rather surprising when, *25 years later*, astronomers registered astonishment to discover that brown dwarfs flare up.

"Astronomers expected brown dwarfs, like most objects in the universe, to grow steadily fainter as they cool. However, new observations showed that during a relatively short phase, brown dwarfs appear to get brighter as they cool."³

In 1977, William Liller believed such flares had to do with the exchange of gases between the dark companion and its white dwarf host,⁴ something that astronomers were to come back to by 2003. In 2002, however, Mark Marley attributed such sudden brightening to the brown dwarf's weather:

"As the brown dwarf cools further, atmospheric weather patterns cause a rapid clearing of the clouds; as the clouds are whisked away by the storms, bright infrared light from the hotter atmosphere beneath the clouds escapes, accounting for the unusual brightening of the brown dwarfs."⁵

But that such flares had nothing to do with the uncovering of the brighter atmosphere by the shifting of the clouds should have been obvious since, as early as 1999, it had been discovered that brown dwarfs also emit strong X-rays. This came to light through the shedding of such rays by the brown dwarf known as LP 944-20 in the constellation Fornax. "After nine hours of seeing nothing special," Maia Weinstock reported, "a bright flare of X-rays taunted

¹ *Ibid.*, p. 87.

² W. Liller, "The Story of AM Herculis," *Sky & Telescope* (May 1977), pp. 350-354.

³ "Astronomers Find Jupiter-Like Weather on Brown Dwarfs," *Science Daily* [electronic]Magazine (May 27, 2002), p. 1.

⁴ W. Liller, *loc. cit.*

⁵ See reference #17, p. 2.

the scientists, appearing briefly as an intense flash before fading out over the following two hours.” Again, astronomers were “shocked” because one of the last things they had expected from such lightweight objects was the shedding of X-rays.¹

Radio flares were also detected being emitted from the same brown dwarf star. These radio emissions “spiked up to 10,000 times stronger than what astronomers thought possible, indicating an intense flare of energy that may be similar to flares on the Sun.”²

“In regular stars [Arnold Benz reported], radio and X-ray emissions are related processes. Radio waves are created by the interaction of electrons with a star’s magnetic force, which sends magnetic loops out through hot plasma above the surface. [T]hese electrons follow a star’s magnetic field lines down into the cooler surface, where they heat gases and generate X-rays.”³

And yet it is obvious that Benz was not quite happy with his own analogy since he also stated that it is possible that “brown dwarfs might emit radio waves via a completely different process than normal stars.”⁴ And that, at least in part, is because brown dwarfs are not supposed to burn hydrogen the way a “normal” star is supposed to do, although they *do* burn deuterium.⁵ But there is another aspect of LP 944-20 which throws doubt on Benz’s analogy, and that is the fact that it “emits radio waves much more intensely and energetically than would be expected, based on its known X-ray emissions.”⁶

Knowing so little about brown dwarfs, even as of this writing, it is doubtful that the above mechanisms are correct in all their details. It does however indicate that radio waves and X-ray emissions are intimately tied up with the dwarf stars’ electric, magnetic, and plasma environment.

As noted, these sudden discharges have been said to be similar to solar flares rather than actual nova-like outbursts. But with radio flares 10,000 times stronger than X-ray emissions would otherwise indicate from an object the mass of which is only 6 percent that of the Sun,⁷ one begins to wonder.

X-rays themselves are believed to “super-heat convecting plasma sheets, and eventually dissipate high-energy radiation into space.”⁸ That similar radiation, or cosmic rays, are also born during supernova explosions is well known.⁹ And that dwarf stars can explode as supernovae has also been theorized.¹⁰ In fact, by 2003, astronomers were talking about dwarf

¹ M. Weinstock, “Powerful Flare from Brown Dwarf Shocks Scientists,” *Space.com* (July 12, 2000).

² R. R. Britt, “Brown Dwarf Emits Strong Radio Flare, Muddling Definitions,” *Space.com* (March 14, 2001).

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*; see also J. Glanz, “Surprise in the Heavens as Energy is Detected in a Brown Dwarf,” *New York Times* (February 21, 2001).

⁷ M. Weinstock, *loc. cit.*

⁸ *Ibid.*

⁹ *New Scientist* (November 10, 2001), p. 16.

¹⁰ T. Lougheed, “Dying Star a Threat to Life on Earth, Researcher Says,” *The Vancouver Sun* (May 24, 2002), p. A11.

novae as a matter of fact. Six of these, all said to be well-known, have been found to flare up “every few weeks or months.” As proposed by Liller in 1997, these outbursts are believed to occur when the dwarf spills gas into a white dwarf companion. And yet, as always the case with these new discoveries, all of these six dwarf novae staggered astronomers by being “more luminous than expected.”¹

Granted that these dwarf novae have been identified as those from *red* dwarf stars, it should be remembered that *brown* dwarfs, which can be just as red, are merely the slightly less massive siblings of red dwarfs. And if red dwarfs can flare up in nova-like brilliance, then so can brown dwarf stars. More than that, if these six red dwarfs flare up “every few weeks or months,” they should be classed as *recurring* dwarf novae, which is what they really are.

PLASMA DISCHARGES

To repeat what Donald Scott has already told us, plasmas at a distance do not “see” each other electrically. What this means is that the Sun’s heliosphere remained electrically unaware of the approaching proto-Saturnian system’s plasmasphere. This plasmaspheric invisibility, however, is not merely electrical. As Hannes Alfvén noted, plasma sheaths or bubbles are quite often optically imperceptible. Although they were not immediately recognized as such, Solar System plasmaspheres—like the one around Saturn itself, to say nothing of Earth’s—are entirely invisible to the naked eye. What is worse is that even with instrumentation, it is almost impossible to detect them *from a distance*.² Although invisible, nearer ones, like those within our Solar System, have of course been detected and even mapped. Their revelation has been made possible through the use of instrument-laden spacecraft. But, as Alfvén also tells us: “A spacecraft usually sees [that is, detects] no indication of such a sheet *until it actually passes through it*.”³

“As it is unlikely that cosmic plasmas have such properties only in those regions which are accessible to spacecraft diagnostics, it is legitimate to conclude that space in general has a ‘cellular structure,’ although this is almost impossible to observe unless a spacecraft penetrates the ‘cell walls’ (current sheets). This means that in distant regions, we cannot hope to detect the cell walls directly. Nor can we tell the size of the cells. It is unpleasant to base far-reaching conclusions on the existence of a structure which we cannot detect directly. But the alternative is to draw far-reaching conclusions from the *assumption* that in distant regions, the plasmas have properties which are drastically different from what they are in our own neighborhood. This is obviously far more unpleasant than our inability to detect distant ‘cell walls.’ Hence, a thorough revision of our concept of the properties of interstellar (and intergalactic) space is an inevitable consequence of recent magnetospheric discoveries.”⁴

¹ J. Roth, “Calibrating Dwarf Novae,” *Sky & Telescope* (September 2003), p. 20.

² H. Alfvén, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 40.

³ *Ibid.* (emphasis added).

⁴ *Ibid.* (all emphasis as given).

Now it so happens that plasmas, too, can explode. Plasmas are sustained as long as they remain in electric equilibrium. This equilibrium can however be unbalanced if the plasma encounters regions of different electrical potential. As Alfvén noted, “the behavior of the plasma depends on the outer circuit.” A stable plasma discharge can become unstable if its resistance is decreased. Such an instability can then lead to an extinction of the plasma’s current. Alfvén was right to stress that “every electric circuit is explosive” so that if the current is disrupted “a release of the whole inductive energy...at the point of disruption will occur.”¹

“If the current disruption is caused by an instability in the plasma, *the inductive energy...in the circuit will be released in the plasma*. It then causes an explosion which may be violent if [the inductive energy] is large.”²

I hate to be more technical than I need to be, but I am sure the educated reader will be able to understand the following explanation as offered by Alfvén:

“Consider a volume V of space limited by a surface S. The properties of the plasma inside of S depend on the boundary conditions. Thus by changing the current through S, we can change the behavior of the plasma.”³

In our own scenario, the volume V of space would translate into the volume of the proto-Saturnian plasmasphere. The surface S would be its limiting boundary. The change of current through S was achieved once the proto-Saturnian plasmasphere came in contact with the Sun’s heliosphere. This occurred because the proto-Saturnian system had penetrated into a different, that is higher, electrical environment.

Additionally, plasmas can have double sheaths or layers,⁴ and the disruption described above “is often caused by a double layer becoming unstable.”⁵ This is because, as in our own scenario, “the voltage drop suddenly increases by orders of magnitude.”⁶

“There are good reasons to suppose that many of the explosive events observed in cosmic physics are produced by exploding double layers [Alfvén tells us]. Examples are magnetic substorms, solar flares, *and similar phenomena in ‘flare stars’*.”⁷

Moreover, the violent current surges produced by the explosion of double layers also lead to the acceleration of plasma particles, “sometimes as high as cosmic ray energies”⁸—which might be tied to the generation of X-rays from both novae, supernovae, and brown dwarf flares.

¹ *Ibid.*, p. 27.

² *Ibid.* (emphasis as given).

³ *Ibid.*, p. 28.

⁴ *Ibid.*, p. 29.

⁵ *Ibid.*, p. 27.

⁶ *Ibid.*, p. 30.

⁷ *Ibid.*, p. 34 (emphasis added); see also p. 38.

⁸ *Ibid.*, p. 8.

WITHIN THE SUN'S DOMAIN

That brown dwarfs are more likely to flare up when closing in on a Sun-like star has also been theorized by others. Brown dwarfs are already known to be more active when in the company of a parent star. As surmised by Andy Lloyd, a brown dwarf could be “re-lit” by its close approach to the Sun.¹ And that, precisely, is what we posit to have befallen proto-Saturn as it entered the Sun’s domain of influence.

As of this writing, the distance of the Sun’s heliopause is not yet known. In other words, it is not yet known how far the heliosphere extends out into space. The best estimate at present places the heliopause at 100 astronomical units from the Sun, which translates into a distance of about 15 billion kilometers.² This would place the extension of the heliosphere well beyond Pluto whose orbital distance from the Sun ranges between 4.4 and 7.4 billion kilometers. Whether the Sun’s heliosphere extended less far or farther during the era with which we are concerned must at present remain something of a moot question.

Since it is also our postulate that the proto-Saturnian system approached the Sun’s domain from beneath the Sun’s equatorial plane, there is actually no way at present to determine at what distance from the Sun the proto-Saturnian plasmasphere contacted the Sun’s heliosphere.

As we have already noted, the proto-Saturnian system’s speed of entry into the Solar System would have been slowed down due to its acquisition of a spiraling orbit around the Sun’s extended axis of rotation. This speed would have been greater had proto-Saturn been less massive. The more massive an object, the more resistance it will exert on the electro, magnetic, and/or gravitational force acting upon it. And, to be sure, it has long been known that “migration works more slowly on massive planets.”³

It might be thought that this slow spiraling migration toward the Sun would have brought the proto-Saturnian system in colliding, or near-colliding, proximity to whatever planets were already within the Sun’s domain. This view is exemplified by what we believe to be Allan and Delair’s invalid scenario in which the invading body of their hypothesis is posited to have interacted violently with just about every planet in the Solar System.⁴ Of course, their invading body is posited to have entered the Solar System along the Sun’s equatorial plane in which the present planets orbit. This would seem to make collisions, or at least near contacts, between the invader and the planets much more likely since its trajectory would have crossed the orbits of the planets. But, as J. G. Hills had shown years earlier, even with an orbit-crossing trajectory, the chances of such an outside invader interacting with just one Solar System planet is close to nil.⁵ Or, as Lloyd phrased it:

¹ A. Lloyd, “The Extended Habitation Zone,” *SIS Internet Digest* (2002:2), p. 3.

² W. Thornhill, “The Electric Saturnian System,” *AEON* VI:1 (February 2001), p. 37.

³ G. Schilling, “Tracking Exoplanet Migration,” *Sky & Telescope* (September 2003), p. 22.

⁴ D. S. Allan & J. B. Delair, *Cataclysm* (Santa Fe, New Mexico, 1997), pp. 220, ff., and see especially Fig 4.13 on p. 228.

⁵ J. G. Hills, “The Passage of a ‘Nemesis’-Like Object Through the Planetary System,” *The Astronomical Journal* (September 1985), pp. 1876-1882.

"Surprisingly perhaps, a small brown dwarf could actually move directly through the solar system without disrupting the other planets. Computer simulations have shown that a planet as massive as 10 Jupiters would have no discernible effect upon the other planets if it moved among them."¹

In our case, with proto-Saturn approaching the Solar system from below, the chances of close contact with whatever planets might have already been dependent on the Sun becomes even less likely. Fair enough, violent planetary interaction is more than mildly intimated in ancient texts, but none of these cosmic catastrophes are anywhere placed in relation to proto-Saturn's flare-up or the ensuing series of events which went down in myth as the Creation. It is thus evident that whatever convulsion was experienced by proto-Saturn in its flare-up, it was not shared by those planets which were already in the Sun's retinue. As Lloyd also surmised, in the event that a brown dwarf was to invade the Sun's family of planets, "life would go on in the solar system as if nothing had ever happened."² Needless to say, because of its close proximity to proto-Saturn, this would not necessarily have applied to Earth and its inhabitants. But we will come to that later.

If our scenario is anywhere near being correct, the planet Saturn, as it exists now, must surely retain some signs of its previous flare-up. Apart from Velikovsky, S. K. Vsekhsvyatskii, who was then the Director of the Kiev Observatory, had also posited that Saturn had erupted in a great outburst. He claimed that something like 10^{25} grams of its material was blown off into space.³ Although, as in Velikovsky's case, we might not *entirely* agree with the full details Vsekhsvyatskii deduced re the mechanism responsible for the eruption, we are of one mind with him when he states that "the present state of Saturn is the result of a relatively recent and especially high flare-up in eruptive activity on the planet."⁴

The "present state of Saturn" includes the cloud of electrified gas or plasma which Voyager 2 discovered circling the planet. Scientists actually "expected things to get very *cold* for Voyager 2 as it sailed toward Saturn, nearly a billion miles from the Sun."⁵ Instead, they found this doughnut-shaped cloud, the temperature of which has been estimated to range "from 60 million degrees Fahrenheit to more than 1,000 million degrees, 300 times hotter than the Sun's outer regions and the hottest spot ever detected in the Solar System."⁶ Others have claimed that the cloud is only "approximately 300 million degrees Fahrenheit," but, strangely enough, "about 50,000 *times* hotter than the Sun's surface."⁷ Go figure.

¹ A. Lloyd, *loc. cit.*

² *Ibid.*

³ S. K. Vsekhsvyatskii, "Comets, Small Bodies, and Problems of the Solar System," *Publications of the Astronomical Society of the Pacific* 74 (1962), pp. 106-115; *idem*, "New Evidence for the Eruptive Origin of Comets and Meteoric Matter," *Soviet Astronomy*, AJ 11:3 (November-December 1967), pp. 473-484.

⁴ *Ibid.*, p. 482; *Idem*, "Indications of the Eruptive Evolution of Planetary Bodies." read at the McMaster University Symposium, June 1974.

⁵ "Hot Gas Rings Saturn," *Science Digest* (April 1982), p. 20 (emphasis as given).

⁶ I. Ball, "View From Voyager," *Daily Telegraph* (October 12, 1981); M. R. Sharpe, "Space Probes," *1983 Yearbook of Science and the Future* (Chicago, 1982), p. 383.

⁷ "Hot Gas Rings Saturn" (see above—emphasis added).

In reporting at a conference sponsored by the Applied Physics Laboratory in Laurel, Maryland, the Voyager scientists confessed that they could not explain the phenomenon.¹ This did not, however, stop them from theorizing about it. Ed Keath suggested that some of the cloud may be composed of “debris attracted and shaped by the magnetic field, or magnetosphere, that surrounds Saturn.”² Another source for the plasma ring has been blamed on a process known as sputtering, in which “particles crash into Saturn’s nearby moons and chip off bits of matter.”³ It had nevertheless to be admitted that none of the above scenarios can be made to account for the cloud’s high temperature. “The processes responsible for heating the cloud up,” Doug Hamilton reported, “are not yet known.”⁴

Under the scheme presented in this work, it almost goes without saying that proto-Saturn’s postulated flare-up accords quite well with the existence of this plasmatic cloud as well as its high temperature.

DATING THE EVENT

For decades my colleagues and I have been asked to place a date on proto-Saturn’s disruption. For years, all I could honestly offer was a time somewhere in the prehistoric past. Man’s prehistory, however, has been longer than his history, so that my contribution was not nearly enough to satisfy those who had been asking for a date.⁵ As the years went by, and research unearthed further evidence, I could narrow the gap by pointing to a time somewhere between the Paleolithic and Neolithic age.⁶ Today I can be a little more explicit by claiming that proto-Saturn’s flare-up brought the Paleolithic age to an abrupt end. But even this will not be enough to satisfy those who still call for an actual date. For them the question is not so much where to place the event chronologically; they want to know how many years ago it transpired. Of course, at this point, all one has to do is date the end of the Paleolithic. But, despite the progress of archaeology, this is not as easy as it sounds.

Generally speaking, Paleolithic objects can be placed chronologically as belonging to an early, middle, or late period. This can be done in several ways. The most accurate depends on the strata in which the artifacts are found—the higher the stratum in the ground, the more recent it has to be. A less certain method involves the comparison of styles, but this can only be done *after* the styles of the respective periods have already been chronologically tabulated. Both these methods, as well as others, are themselves fraught with difficulties. Objects from a higher stratum can migrate through various processes into a lower one, thus supplying a false chronological placement. Similar styles, on the other hand, are not necessarily indicative of the

¹ I. Ball, loc. cit.

² “Hot Gas Rings Saturn” (see above).

³ *Ibid.*

⁴ *Ibid.*

⁵ See here, for example, P. J. James, “The Saturn Problem,” *Chronology & Catastrophism Review* (2000:1), p. 98.

⁶ D. Cardona, “In Defense of the Saturn Thesis,” *Aeon* VI:3 (November 2002), p. 49.

same period. But even the correct chronological placement of Paleolithic objects does not, in itself, supply archaeologists with a series of actual dates.¹

Correct dating requires a correct dating technique. But most methods can only date objects and/or the carbonized remains of objects. They are not very useful when it comes to dating the end of an epoch, an era, or a shorter age. At present, the radiocarbon method is the technique most favored by archaeologists. Although, like others, it cannot be used to supply us with an *absolute* date for the *end* of the Paleolithic age, it at least has been used to date various articles from that period.² If nothing else, this should give us an idea concerning the antiquity of the age in question. But is the radiocarbon method really all that accurate?

Debates on this issue have ranged since the introduction of the method by Willard Libby. Right from its inception, certain anomalies came to light which raised the undesired voice of criticism. As time went by and more items were tested, the anomalies accumulated at an unreasonable rate. Archaeologists began to cast doubt on the validity of the method. Eventually a corrective measure was introduced into the radiocarbon method through reliance on dendrochronology. Unfortunately, this technique, which is based on the counting and matching of tree rings, is just as faulty as the one it is meant to correct.³ And even then, the anomalies did not disappear; on the contrary they continued to accumulate.

At bottom, of course, lies the fact that the radiocarbon method depends on the assumption that the atmospheric content of Carbon-14 has been constant throughout Earth's history. But, as various authorities have demonstrated, nearby supernovae tend to increase the carbon-14 content in our atmosphere.⁴ This, alone, is enough to throw the entire radiocarbon method of dating out of kilter. I could end my argument there, but consider also this: If "nearby" supernovae, by which astrophysicists mean anything up to 500 pc,⁵ can upset the Carbon-14 content in our atmosphere, how much more would the much closer proto-Saturnian flare-up have disrupted Earth's atmospheric Carbon-14 production?

Added to all this is the fact that archaeologists do not always agree among themselves concerning the age of items, sites, strata, and periods. Nor have the attributed dates been known to be constant through the years. This latter is perhaps understandable since newer discoveries, to say nothing of newer methods, tend to refine older dates. But, given the yo-yoing of dates through the years, one remains hard-pressed to come to a definite conclusion about the *absolute* age of anything in the prehistoric past. Thus, for instance, in 1961, the retreat of the Ice Age was calculated to have transpired in 18,000 B.C.; the end of the Magdalenian period was

¹ See here, for instance, J. Jelinek, *The Pictorial Encyclopedia of the Evolution of Man* (N. Y., 1975), pp. 457-467.

² Again, see here, for instance, *Ibid.*, p. 467.

³ For problems with tree ring dating, on which dendrochronology rests, see D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 374-377.

⁴ R. E. Lingenfelter & R. Ramaty, "Astrophysical and Geophysical Variations in C14 Production," in I. U. Olsson (Ed.), *Radiocarbon Variations and Absolute Chronology* (Stockholm, 1970), pp. 513-535; J. C. Houtermans, *et al.*, "Reservoir Models and Production Rate Variations of Natural Radiocarbon," *Journal of Geophysical Research*, 78 (1973), pp. 1897-1907; G. R. Brakenridge, "Terrestrial Paleoenvironmental Effects of a Late Quaternary-Age Supernova," *Icarus*, 46 (1981), p. 86.

⁵ G. R. Brakenridge, *op. cit.*, p. 81.

placed somewhere around 8000 B.C., with the beginning of the Neolithic in the Near East at about the same time.¹ But, during the same year, authorities in Britain differed. The end of the Ice Age was there believed to have transpired sometime between 9000 and 8000 B.C.,² with the end of the Magdalenian, the entire Paleolithic, and the advent of the Neolithic (including the Mesolithic) all occurring around 10,000 B.C.³ In continental Europe, where, to confuse matters further, an entirely different terminology has been adopted, what is termed the Würm Glaciation, which is the last period of the Pleistocene Ice Age, is dated at 125,000 years ago, which would have ended about 11,000 years ago at the beginning of the Holocene.⁴ The Paleolithic art at Lascaux has been dated at $15,515 \pm 900$ years, with deposits from the Middle Magdalenian period at 14,050 years.⁵ These last two items, however, have absolutely nothing to tell us about the *end* of the Paleolithic which, given the above dates, would have to be later than 14,000 B.C.

With so many confusing dates flying around, I refuse to be pigeonholed. As Frederic Jueneman stated some time back: "Too many difficulties in our present dating methods prevent even an attempt to establish the timing with anything approaching precision."⁶ Fair enough, there have been finer refinements through the years since Jueneman wrote the above, but, even then, it all depends on which authority one wishes to rely. In any case, I am not about to start splitting hairs at this point, so let us stick to generalities.

The best that can be extracted from the above, give or take a little, and in keeping with a round figure, is that the end of the Ice Age and the end of the Paleolithic age coincided somewhere around 10,000 B.C. And, since the Neanderthals did not make it into the following Neolithic age, it can be safely stated that they succumbed at around the same time. Would it, therefore, be unreasonable to claim a single cause for all three terminations?

A BENCHMARK FIGURE

As long as it is kept in mind that this 10,000 years is an approximate and rounded figure, we can use it as a benchmark to pin-point the "date" of proto-Saturn's flare-up with some accuracy. The next question, therefore, is: Can this date be validated?

Using various lines of reasoning in early scenarios which differ from ours, some catastrophists have nevertheless zeroed in on the same date or one that is not that far off. One exception was Alfred de Grazia who claimed that a "set of [cosmic] catastrophes" took place during the Holocene epoch which he dated at 14,000 years ago.⁷ He then posits a fissioning flare by proto-Uranus, which he termed Super-Uranus, "around 11,500 years ago," and another by what he termed Super-Saturn "around 6000 years ago."⁸ De Grazia based this on the well known

¹ L. Barnett, *The Epic of Man* (N. Y., 1961), p. 298.

² G. Clark, "The First Half-Million Years," in S. Piggott (Ed.), *The Dawn of Civilization* (N. Y., 1961), p. 31.

³ *Ibid.*, p. 20.

⁴ J. Jelínek, *op. cit.*, p. 9.

⁵ *Ibid.*, p. 467; B. M. Fagan, *The Adventure of Archaeology* (Washington, D.C., 1989), p. 358.

⁶ F. B. Jueneman, "The Hermes Connection," *AEON* I:5 (September 1988), p. 82.

⁷ A. de Grazia, *Chaos and Creation* (Princeton, 1981), pp. 5, 76, 78, 80, 83 ff.

⁸ *Ibid.*, pp. 88, 96.

genealogy of the Greek gods which has Ouranos birthing Kronos who, in turn, gave birth to Zeus. Unfortunately there is nothing in the mytho-historical record that can be attributed to the planet Uranus. Not only that, but, although Uranus can indeed be discerned, given good acuity of vision, with the naked eye in an unpolluted sky, the fact remains that the planet went unrecognized, and thus undocumented, by all ancient observers. It even evaded the eyes of modern man up until 1781 when, as is well known, William Herschel discovered it.

Velikovsky himself would not commit to an exact date, giving instead a somewhat wide range, but leaning heavily toward our benchmark. “I am not in a position to point to the century or even millennium when the Universal Deluge took place,” he wrote, “but it must have happened between five and ten thousand years ago, *probably closer to the second figure.*”¹ As already noted, to Velikovsky, *although not to us*, the “Universal Deluge” followed seven days after proto-Saturn’s flare-up, so that his date is also applicable to his Saturnian nova.

Peter Warlow, keeping to his scheme which involves a series of partial and complete inversions of the terrestrial sphere, also dates one of these events at 10,000 years ago.²

J. Bernard Delair places the “last major” invasion of the Solar System by his postulated cosmic visitor, “a fragment of an exploded star,” at 11,500 years ago.³ Together with Derek Scott Allan, Delair had previously bolstered this catastrophe through evidence derived from the geological record.⁴

Similar geological evidence, much of which applies to our own scenario, was also utilized by E. P. Izokh who blamed the catastrophe on Earth’s collision with a comet. He, too, placed this occurrence at about 10,000 years ago.⁵

Since none of the above scenarios are identical to ours, with some of them differing considerably, it may seem that their inclusion in this work amounts to nothing but a clutching at straws in an endeavor to keep our benchmark figure’s head above the water. But apart from the old adage that wherever there is smoke, there is bound to be a fire, it should be noted that the reasoning and *hard* terrestrial evidence supplied by the above catastrophists is near-identical to ours even if the actual cause proposed in each instance is not.

THE ALUMINUM CLOUD

While I cannot be definite about the following, the discovery of a cloud of Aluminum-26 just outside the Solar System and surrounding it might turn out to be vital to our hypothesis. Aluminum-26 is a radioactive isotope with a half-life of about a million years and is believed to be produced in novae and supernovae outbursts. If that is the case, Earth would literally be *within* this supernova remnant.⁶

¹ I. Velikovsky, “The Pitfalls of Radiocarbon Dating,” *Pensée* IVR IV (Spring-Summer 1973), p. 13 (emphasis added).

² P. Warlow, *The Reversing Earth* (London, 1982), p. 193.

³ J. B. Delair, “Planet in Crisis: The Earth’s Last 12,000 Years,” *Chronology & Catastrophism Review* (1997:2), pp. 4, 9.

⁴ *Idem*, with D. S. Allan, “Scientific Evidence for a Major World Catastrophe About 11,500 Years Ago: A Preliminary Selection,” *Chronology & Catastrophism Review* XVII (1995 Special Issue), pp. 41-48.

⁵ E. P. Izokh, *Geologiya I Geofizika* 38:3 (1997), pp. 628-660.

⁶ “Are We Inside a Supernova Remnant?” *Sky & Telescope* (January 1985), p. 13.

Donald Clayton placed the source of this cloud at "no more distant than 45 lightyears,"¹ which is not specific enough. Forty-five lightyears would locate the event beyond the present estimate of the Sun's heliosphere. On the other hand, "no more distant than" could mean much less. Even so, this range was the result of an *ad hoc* assumption based on whether the Aluminum-26 in question is or is not evenly distributed in interstellar space.² While it cannot, therefore, be yet stated for certain that this cloud originated in proto-Saturn's flare-up, there is at least a possibility that the event could have taken place within our time interval.

As noted, aluminum-26 has a half-life of about a million years. It then decays into magnesium-26. But since no magnesium-26 has been discovered in the cloud, it cannot obviously be that old. Understandably, Clayton would not crawl too far on the proverbial limb by committing himself to an absolute date for the occurrence that gave birth to this cloud. He felt more comfortable in sticking to a safe range. Given the half-life of aluminum-26, he reasoned that the nova-like outburst could have transpired as long ago as 1,000,000 years; but in view of the fact that it had not yet decayed into magnesium-26, he felt that the explosion could just as easily have occurred a mere 10,000 years ago.³

Even so, whether or not the origin of this cloud had anything to do with proto-Saturn's flare-up must, as of this writing, remain something of a moot question. In the meantime, as the rest of this work will amply show, there is enough hard evidence at our disposal that speaks in favor of the event in question.

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*

PART FIVE

AFTERMATH

Chapter 17

Magnetospheric Upheaval

THE STAR OF EVIL

While the entry of the proto-Saturnian assemblage into the Solar System seems to have left whatever planets were already in the Sun's domain unscathed, the cosmic disaster caused by proto-Saturn's flare-up was not without its repercussions on Earth and its inhabitants. The flare itself was glorious and proto-Saturn continued to be remembered as a god of light. Man was never to forget the glory but he did not much wish to remember that the destruction which followed owed its cause to the manifestation of what had by now become his god.

The Hebrews remembered Elohim but, in later times, they disassociated the planet from the god. The planet Saturn itself they named Kewan and on it, rather than on its god, they blamed the tribulations it brought to man. For that reason, they described the planet as "the star of evil which brings misfortune to Israel."¹

Only to Israel?—one may ask.

The very word "disaster," from the Latin *dis aster* or *dis astrum*, means "evil star." This came about because, among the Romans, Saturnus was considered "both a good and malevolent deity."² The Latin poet, Marcus Annaeus Lucanus, popularly and simply known as Lucan, described the same Saturnus as "a baleful star."³

As Lewis Greenberg noted, "the words 'saturnine,' signifying gloomy, and 'Saturnian,' meaning Golden Age, offer a strange and almost inexplicable contrast."⁴ In the end, this ambivalence between good and evil resulted in the strange association of God with the Devil. Greenberg, however, was astute enough to recognize that "it would appear that the state of the world was once closely dependent upon, and drastically altered by, the planet Saturn which itself must have undergone a transformation of cosmic magnitude."⁵

That man tried to forget—although he did not succeed—was not because he willed it so, but because it was painful to remember; because if god, from whom there seems to have been no protection, was a god of destruction, life beneath his cruel sceptre was akin to abject slavery, an existence fraught with terror, a future pregnant with evil and impending annihilation. Primitive man found it difficult to live under these conditions and his mind, in a collective attempt to retain its sanity, reversed the aspect of reality. Out of a demonic entity—and even

¹ L. Ginzberg, *Legends of the Jews*, Vol. V (Philadelphia, 1968), p. 135.

² J. M. Robertson, *Christianity and Mythology* (London, 1900), p. 246.

³ Lucan, *Pharsalia*, I:652.

⁴ L. M. Greenberg, "The Lord of Light," *AEON* III:4 (December 1993), p. 16.

⁵ *Ibid.*



Saturnus—the planetary god who was the embodiment of a baleful star.

Zeus was later to call Kronos/Saturn a demon¹—mankind manufactured for itself a benign god and one of the world’s worst destructions was transmogrified into a *credo* of genetic Creation.

SHAITAN

The ambivalence between good and evil continued to manifest itself among those who actually identified the Creator with Satan.² In Hebrew, as used in the Old Testament, the term *shaitan* “refers not to the personification of evil, but to an adversary,” himself “an agent of the Lord who obstructs or opposes man.”³ In fact, as A. E. Garvie notes, before the Israelites came in contact with Persian beliefs, “evil, whether as misfortune or as sin” was originally “assigned to *divine* causality.”⁴ It was only after their exile, by which time they had been influenced by Persia, that there developed in the Israelite nation a tendency “to separate all evil from God by ascribing its origin to Satan.”⁵

What was the origin of this entity?

To be sure, there are some who have seen the name “Satan” as having been derived from “Saturn.”⁶ Etymologically, this cannot be accepted since, as already noted, the name Satan is merely the English transcription of the Semitic *Shaitan*. There are other indications, however, that the entity known as Satan owes its origin to the planetary god in question.

The *Gospel of Bartholomew* names this “adversary of men” as Beliar⁷ (the same as Be-lial), which is merely a different rendering of Bel, whose identity as Saturn has been recognized by ancient as well as modern authorities.⁸ The *Gospel of Matthew*, on the other hand, identifies him with Beelzebul (or Beelzebul),⁹ which should be more correctly rendered Ba’al Zebub. Later still, the early Christian Fathers continued to regard Ba’al Zephon as Satan.¹⁰ And yet Ba’al Zephon translates as “Lord of the North,”¹¹ which is a very appropriate title for the Saturnian planetary god situated in Earth’s north celestial pole.¹²

In the Old Testament—despite Cyrus Gordon and Gary Rendsburg’s more recent apologetics¹³—the Israelite El, a common form of the Near Eastern Saturnian deity, is

¹ *Orphicorum Fragmenta*, frag. #155, ed. by O. Kern (Berlin, 1963), p. 194.

² W. A. Heidel, *The Day of Yahweh* (N. Y., 1929), p. 522.

³ A. E. Guinness (Ed.), *Mysteries of the Bible* (N. Y., 1988), p. 296.

⁴ A. E. Garvie, “Devil,” *Encyclopaedia Britannica*, Vol. 7 (1959 edition), p. 283 (emphasis added).

⁵ *Ibid.*

⁶ J. Purce, *The Mystic Spiral* (London, 1974), p. 21.

⁷ *Gospel of Bartholomew*, IV.

⁸ See back to page 303.

⁹ Matthew 12:26, 27.

¹⁰ W. A. Heidel, *op. cit.*, p. 449.

¹¹ H. Goedicke, in M. Rowland (Ed.), *Exodus: Myth or History* (Hants, England, 1994), p. 9. (NOTE: Goedicke’s identification of the geographical locality named after this god is of no consequence to the present study.)

¹² See here D. Cardona, “Child of Saturn,” Part V, *KRONOS* X:3 (Summer 1985), pp. 61-63.

¹³ C. H. Gordon & G. A. Rendsburg, *The Bible and the Ancient Near East* (N. Y., 1997), p. 227.



Ba'al who, in early Christian times, was identified with Satan. From a stele discovered at Ugarit, modern Ras Shamra. (Illustration by Marie-Josèphe Devaux.)

often referred to as Ba'al.¹ Even Yahweh, whom we have already seen identified as a Saturnian deity, was equated with Ba'al.² The Prophet Hosea himself referred to Yahweh as the Ba'al of Israel.³ It therefore becomes evident that Satanic and divine power were ambiguously regarded as having been one and the same.

This ambiguity continues to be evidenced by the Gypsy name for "God," which is *devel*.⁴ This is traceable to early Indo-European nomenclature. Thus, as it ended up in Hinduism, the word *deva* stood for "God." But according to Persian (or Iranian) tradition, *deva* stood for "fiend" or "devil."⁵

It should not therefore be considered strange, as it normally is in the Western world, that a Kurdish tribe known as the Yezidis worship Shaitan as a god. To them, Shaitan represents the real force of divine power.⁶

All this has been brought out here in order to stress the disparity of the planetary god Saturn who continued to be remembered both as the Lord of Light and the Star of Evil.

EARTH'S DIMINISHING FIELD

What was the evil that proto-Saturn's flare-up brought upon mankind? What were the repercussions of this event on Earth and its inhabitants?

Strange as it may seem, some of these repercussions were not even evident to man.

¹ S. H. Langdon, *Semitic Mythology*, Vol. V of *The Mythology of All Races* (N. Y., 1931/1964), p. 67; L. E. Stager, "The Shechem Temple," *Biblical Archaeology Review* (July/August 2003), p. 28.

² W. A. Heidel, *op. cit.*, p. 445.

³ Hosea 2:16.

⁴ M. O. Howie, *The Encircled Serpent* (N. Y., 1955), p. 225.

⁵ Although this is widely known, see here G. Rawlinson, *The Seven Great Monarchies of the Ancient Eastern World*, Vol. II (N. Y., 1884), p. 50.

⁶ M. R. Izady, *The Kurds—A Concise Handbook* (London, 1992) and A. Collins, *From the Ashes of Angels: The Forbidden Legacy of a Fallen Race* (London, 1996) as cited by D. M. Rohl, *Legend: The Genesis of Civilisation* (London, 1998), p. 150.

Such, for instance, was the case of Earth's electromagnetic field, which is presently dissipating, concerning which ancient man could not have known anything.

It was the German mathematician Johann Carl Friedrich Gauss who, in 1832, published a paper on the absolute measurement of magnetic quantities. Then, in 1834, he set up a magnetic observatory in Göttingen and organized a magnetic union in order to co-ordinate simultaneous observations of magnetic phenomena throughout various parts of Europe. Since then, Earth's magnetic field has continued to be monitored down to the present. Correct measurement of Earth's field, Thomas Barnes informs us, "requires statistical reduction of large amounts of data from a worldwide network of magnetic observatories."¹ The results from these observations, Barnes tells us, "show that there is no question but that the earth's magnetic moment [i.e., the vector quantity that specifies a magnet's strength and direction] and its associated dipole field have been decreasing" since Gauss' pioneering measurements.² This was supported earlier by the work of S. Chapman who showed that:

"These results certainly suggest a decrease of a few percent in H_o and the earth's magnetic moment during the last century. When the great scale of the phenomenon is considered, this must seem a remarkably large and rapid secular change, not paralleled for any other worldwide geophysical property."³

True enough, in 1967, J. A. Jacobs seemed to have indicated otherwise when he wrote that: "Paleomagnetic measurements have shown that the earth's main field has existed throughout geologic times and that its strength has never differed widely from its present value."⁴

This, however, needs a clarification. As long as Jacobs is referring to "the earth's main field," he is entirely correct. This is so because, very much as he claimed, Earth's magnetic field is not really vanishing, slowly or otherwise. It is only *its dipole* that is weakening. In other words, it is that part of the field which dictates its north and south polarity that is really decaying. The total energy of the magnetic field is not changing, at least not significantly⁵—and this has not always been understood by past writers on cosmic catastrophism.

"Since the time of Gauss' measurements the earth's dipole moment has decreased, sensibly linearly, at approximately the rate of 5% per hundred years," K. L. McDonald and R. H. Gunst continued to verify a year after Jacobs wrote the above words. "Assuming these rates to persist, our analysis discloses that the dipole moment will vanish in A.D. 3991."⁶

¹ T. G. Barnes, "Recent Origin and Decay of the Earth's Magnetic Field," *S.I.S. Review* II:2 (December 1977), p. 43.

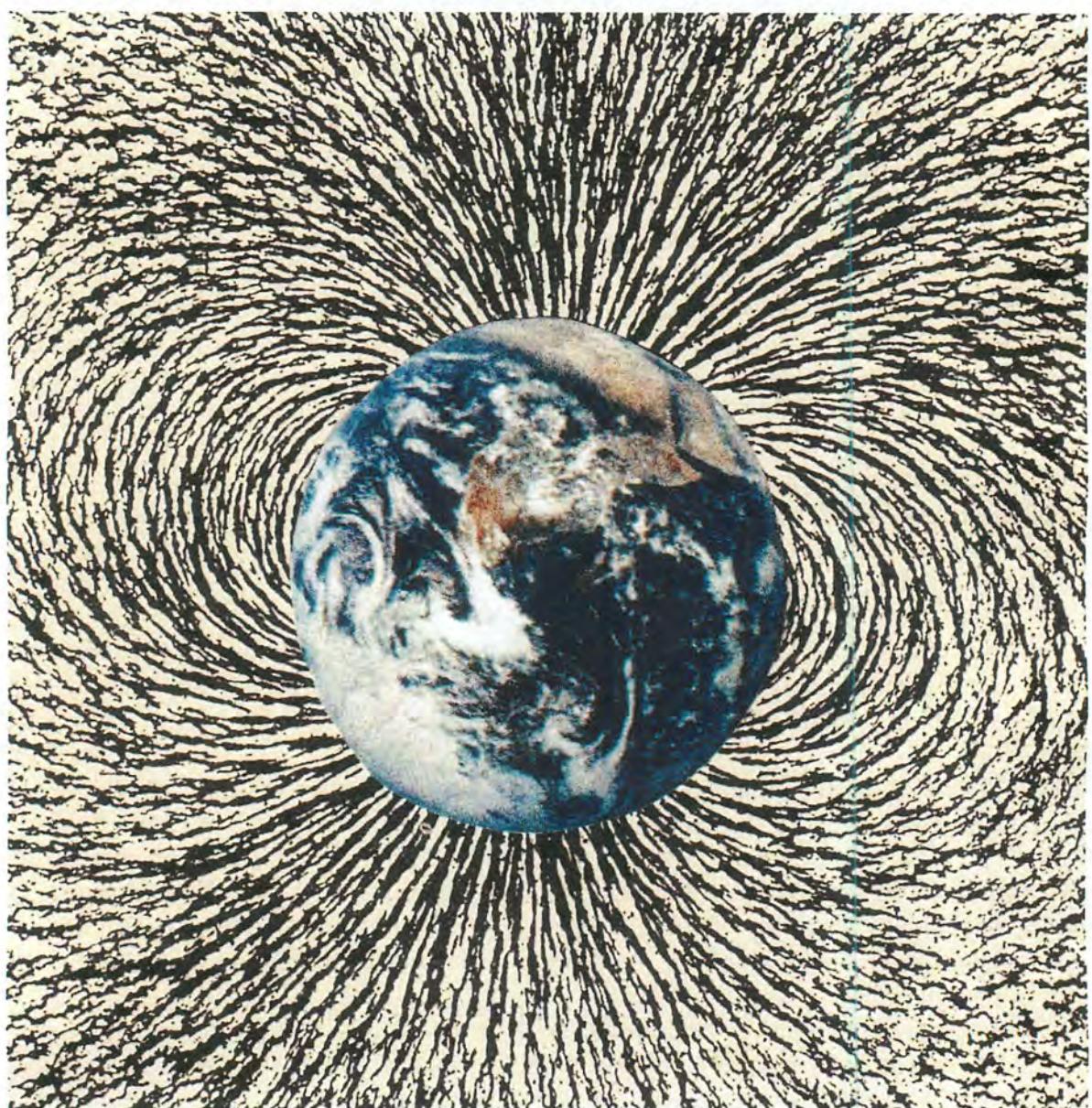
² *Ibid.*

³ S. Chapman, *The Earth's Magnetism* (London, 1951), as cited in *ibid.*

⁴ J. A. Jacobs, "The Earth's Magnetic Field," *Mining Geophysics*, Vol. II (Tulsa, 1967), p. 430.

⁵ For further details on this, see D. Brain, "Earth's Magnetic Field," in the "Ask Astro" section, *Astronomy* (August 2003), pp. 72-73.

⁶ K. L. McDonald & R. H. Gunst, "The Earth's Magnetic Field from 1835 to 1965," *ESA Technical Report IER 46-IES* (Washington, 1968), p. 1, as cited by T. G. Barnes, *loc. cit.*



Earth's magnetic field

And, according to the American Institute of Physics: "There are also indications that the dipole moment has decreased at a relatively uniform rate from about 8.55×10^{25} gauss cm² in 1835 to 8.005×10^{25} in 1965."¹

The only remaining problems concerned the cause of the decrease and whether it was unidirectional. As Richard Severs noted:

¹ American Institute of Physics Handbook (1972), as cited in *ibid.*

"All determinations show a general tendency of a continuous decrease in geomagnetic field intensity during the past 2000 years. However, it is not clear whether this decrease is part of a short-lived exponential decay, or whether it is part of a long-term cyclical variation in field intensity."¹

Thomas Barnes' conclusion was that the field was decaying exponentially with a half-life of a mere 700 years.² But, as Severs also noted: "This conclusion is not widely accepted but does follow logically from Barnes' arguments based on Maxwell's electromagnetic field theory and a freely decaying electric current circulating in the conductive core of the Earth as the source of the Earth's main magnetic field, a dipole field."³ Severs' own inclination was toward a cyclical variation:

"According to this view, the geomagnetic field intensity is nearly the same at present (8×10^{25} gauss cm³) as that of about 2000 B.C. with a minimum between 4000 and 6000 years ago. These variations in the dipole moment of the geomagnetic field, determined from archeomagnetic intensity studies, are reported as 500 year averages."⁴

But—of great importance to our thesis—Severs himself continues by stating that:

"Japanese and Russian data also imply a cyclic change of the field intensity with a period of the order of 10,000 years. This is in phase with the abrupt climatic change that occurred at the end of the last Ice Age."⁵

It is also of some import that, besides the effects of relatively nearby supernovae, as already noted, it has also been surmised "that past variations in Earth's magnetic field effect the radiocarbon dating method."⁶

EARTH'S REVERSING FIELD

Keeping in mind that we are still talking about the terrestrial dipole, by 1980 it had been calculated that Earth's magnetic field strength has weakened by 50 percent over the past 2500 years. "If this trend continues," wrote John White, "the field will disappear altogether—perhaps as soon as early in the next century—and then presumably reappear with reversed polarity."⁷ And, to be sure, paleomagnetic evidence of Earth's rocks indicate that Earth's magnetic field has reversed polarity more than once in the past and will be doing so again in

¹ R. K. Severs, "Gerontology, Environment, and Geological Catastrophism," *KRONOS* IV:1 (Fall 1978), p. 23.

² T. G. Barnes, *loc. cit.*

³ R. K. Severs, *loc. cit.*

⁴ *Ibid.*, pp. 23-24.

⁵ *Ibid.*, p. 24, with a citation to S. P. Burlatskaya, "The Ancient Magnetic Field of Earth," *Bulletin of the Academy of Science, USSR Geophysical Series* (English Translation), 4 (1962), pp. 343-345.

⁶ *Ibid.*, p. 23.

⁷ J. White, *Pole Shift* (N. Y., 1980), pp. 9-10.

the future—although this, too, has raised vehement criticism in some quarters.¹ Even so, despite that, the tie-in between the decreasing field and its reversal is now a generally accepted tenet of science. As Corey Powell could state in the year 2000:

“Every few *hundred thousand years* Earth’s magnetic field dwindle almost to nothing for perhaps a century, then gradually reappears with the north and south poles flipped. The last such reversal was *780,000 years ago...*”²

Powell also claims that “our magnetic field has decreased about 5 percent in the past century.”³ Thus, with others, he gives the impression that the decrease is not really that extensive. Others have claimed that the field “has been diminishing precipitously for the past 150 years,”⁴ again giving the false impression that the decay does not reach into the remote past. But new methods of measuring the strength of Earth’s past magnetic field have revealed that it was *three times stronger* during the age of the Dinosaurs than it is at present.⁵ Moreover, computer simulations have recently indicated that a polarity reversal can occur in a mere 1,200 years.⁶ Others have vouched that each reversal may have taken only a few *hundred* years,⁷ and even less—fast enough that an observer would have actually seen a compass needle move.⁸

“780,000 years ago,” as per Powell, is a far cry from the 10,000 years ago of our posited event. Powell, however, is here suppressing earlier evidence since it had already been conceded that one of these magnetic reversals had occurred somewhere between 12,600 and 8,600 years ago,⁹ and/or between 17,000 and 7,000 years ago.¹⁰ Known as the Laschamp event, or Laschamp flip, this has even been narrowed down by some to about 10,000 years ago.¹¹ As Peter Warlow noted: “The 10,000-year ago event is the most recent that would be acknowledged by geologists, being the time of the end of the last glaciation and the time which some acknowledge as the most recent well-documented magnetic reversal...”¹²

¹ See for instance A. A. Meyerhoff & H. A. Meyerhoff, “The New Global Tectonics: Age of Linear Magnetic Anomalies of Ocean Basins,” *American Association of Petroleum Geologists Bulletin* 56:2 (February 1972), p. 337.

² C. S. Powell (with D. Martindale), “Twenty Ways the World Could End Suddenly,” *Discover* (October 2000), p. 53 (emphasis added).

³ *Ibid.*

⁴ S. Simpson, “Headed South?” *Scientific American* (November 2002), p. 24.

⁵ *New Scientist* (March 10, 2001), p. 27.

⁶ S. Simpson, *loc. cit.*

⁷ *Daily Telegraph* (August 7, 1989); *New Scientist* (September 30, 1989), p. 32; *Nature*, 339, pp. 582-583.

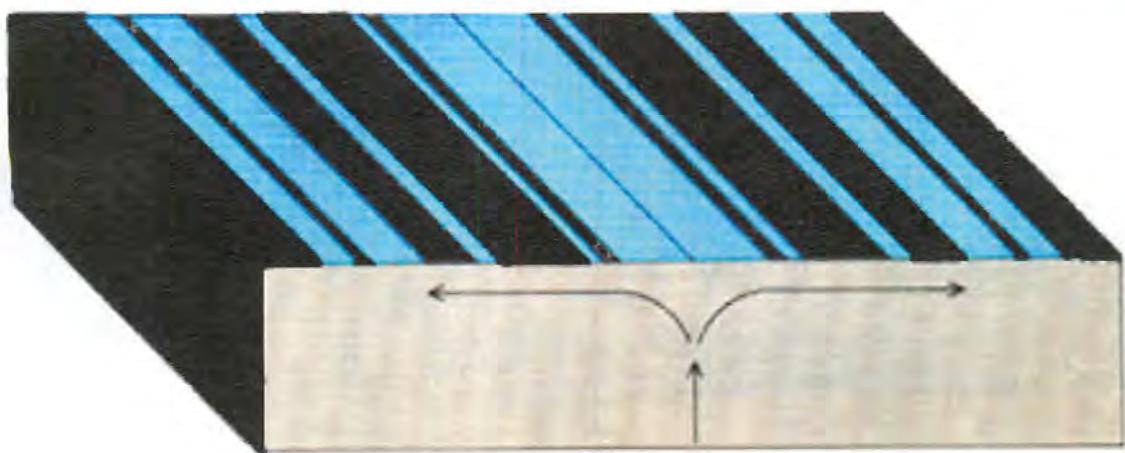
⁸ *New Scientist* (March 30, 1996), pp. 24-28; *ibid.* (May 11, 1996), p. 51.

⁹ “A New Magnetic Reversal at 12,500 Years?” *Nature* 234 (1971), p. 441.

¹⁰ M. Noel & D. H. Tarling, “The Laschamp Geomagnetic Event,” *Nature* 253 (1975), pp. 705-706.

¹¹ P. Warlow, *The Reversing Earth* (London, 1982), p. 53.

¹² *Ibid.*, p. 193.



Idealized view of polarity reversal signatures mirror-imaged on both sides of material upwelling from a mid-oceanic ridge. Strips (rocks) of normal (that is, present-day) polarity are shown in blue. Strips of reversed polarity in black.

GEO MAGNETIC RETROCALCULATIONS

The problem that has confronted geoscientists is that if one were to retrocalculate Earth's magnetic field decrease back into time, a point is reached beyond which the field's strength would have been impossibly large. To quote Frederic Jueneman, "back-calculating from the exponential decay rate [reveals] that Earth would have had an implausibly large magnetic field just a few thousand years ago, something on the order of 20 gauss at about 5,000 BC [when the present value is a mere 0.62 gauss] and approaching the magnitude of a sunspot just beyond 10,000 BC, with the makings of a pulsar by 50,000 BC."¹

These values were those reached by Barnes through his computed exponential decay rate based on Gauss' original value,² which led him to conclude that:

"It is obvious that this magnetic decay phenomenon could not have been going on for more than a few thousand years, as the magnetic field would have been implausibly large for a relatively neutral body such as the earth. *There has to be a relatively recent origin or some catastrophic change somewhere in the more recent half of that timetable.*"³

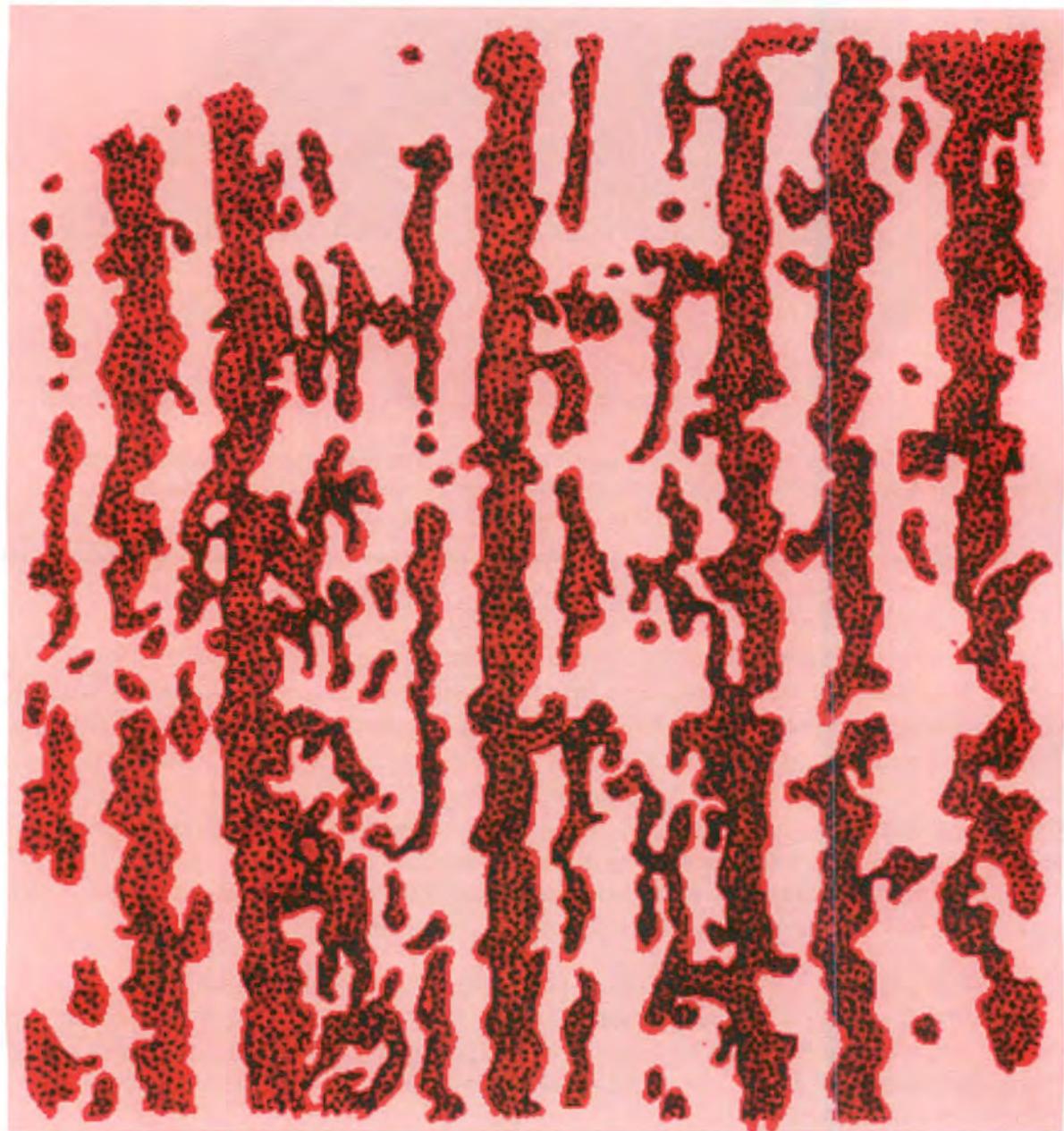
This was echoed by Jueneman when he wrote that "if the Earth wasn't something of a magnetic star some 10 millennia ago, *an extraordinary and catastrophic change must have taken place in the experience and memory of mankind.*"⁴

¹ F. B. Jueneman, "Magnetic Depletion," *Industrial Research and Development* (August 1978), p. 13.

² T. G. Barnes, *op. cit.*, p. 45.

³ *Ibid.* (emphasis added).

⁴ F. B. Jueneman, *loc. cit.* (emphasis added).



A more realistic facsimile print-out of reversed-polarity signatures from an area of the mid-Atlantic ridge south-east of Greenland.

GEOMAGNETIC EXCURSIONS

It is, of course, no secret that Barnes' method has been severely criticized. John Milsom, for instance, could not accept the decay of the geomagnetic field as being, and/or having been, exponential. His claim was that archaeologically-dated pottery, which preserve the

magnetic imprint at the time of firing, "suggest that the field has been decreasing only for the last 2,000 of these years, and increased during the previous 2,000." Milsom himself, however, warned that there are "wide error margins" in the results obtained through this technique.¹ Even so, what can be said about this archaeologically-dated pottery?

This concerns kiln-fired Etruscan and Attic vases. In such cases, the fired items tend to register the magnetic inclination, or dip, through the iron particles in the clay. A study of these vases by Giuseppe Folgheraiter in 1896 concluded that, in the eighth century B.C., Earth's magnetic field must have been inverted in both Italy and Greece since the magnetic imprint of these receptacles indicated that the south magnetic pole was closer to the kilns than was the north magnetic one.²

Meanwhile, similar studies were conducted by P. L. Mercanton on fired clay pots of the earlier Hallstat age in Bavaria, as also from the Bronze Age caves in the vicinity of Lake Neuchâtel. These, however, indicated that during this earlier time, approximately the tenth century B.C., the direction of the geomagnetic field differed only slightly from its present value.³

From these items, Immanuel Velikovsky concluded that Earth's magnetic field must have reversed its polarity sometime between the tenth and eighth century B.C., preferring the later date because of his own cosmic scenario.⁴

One objection that was raised against this by the editor of *Science News* and others is that Folgheraiter was wrong and that the pottery in question had simply been fired upside down.⁵ But, for one thing, Mercanton had already checked Folgheraiter's method and results and found them to be beyond fault.⁶ And, for another, the vases in question could not have been fired upside down because, had they been, the glaze with which they had been coated, which responds to gravity, would have flowed toward their rims.⁷

A more telling objection to these reversals stems from the fact that data derived from lake sediments dated to the same age fail to confirm the reversal,⁸ which could therefore not have been world-wide.

There is additional evidence of a magnetic swing at around 1500 B.C. This came from examination of sediments at Loch Lomond in Scotland⁹ and Lake Windermere in England.¹⁰ However, as Kenneth Hoffman indicated, paleomagnetic data obtained from sediments contain too many uncertainties, and have caused too much controversy, to be taken at face

¹ J. Milsom, "A Commentary on Barnes' Magnetic Decay," *S.I.S. Review* II:2 (December 1977), p. 46.

² G. Folgheraiter, *Rendi Conti dei Licei* and elsewhere as cited by I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 146.

³ P. L. Mercanton, *Archives des Sciences Physiques et Naturelles*, as cited in *ibid.*

⁴ I. Velikovsky, *op. cit.*, pp. 146-147.

⁵ F. Hitching, *The World Atlas of Mysteries* (London, 1979), p. 32.

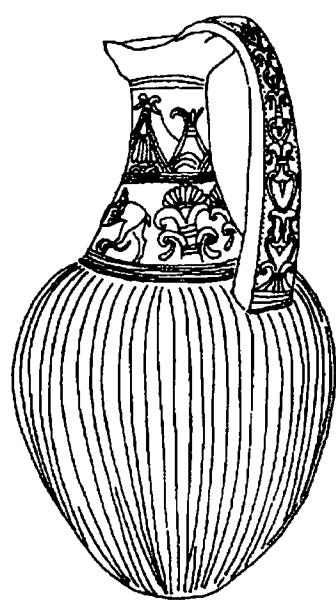
⁶ P. L. Mercanton, *loc. cit.*

⁷ G. Folgerhaiter, *loc. cit.*

⁸ J. A. Jacobs, *Reversals of the Earth's Magnetic Field* (Bristol, 1984), pp. 86-87.

⁹ R. Thompson, *Earth and Planetary Science Letters* 42 (1979), pp. 412 ff.

¹⁰ I. Mackereth, *ibid.*, 12 (1971), pp. 332 ff.



Etruscan vases of the 8th century B.C., similar to the ones shown, embody reversed magnetic polarity in the iron particles contained in the clay.



Attic pottery from the 8th century B.C.
which, like the Etruscan vases on the opposite page, embody reversed magnetic polarity.
(Illustrations by Christiane Simon.)

value.¹ This, then, would also throw the above objection against the reversal indicated by the Etruscan and Attic vases into doubt.

Aberrant magnetic swings are also indicated by the magnetic signatures detected at archaeological sites in Crete. Here, signatures from sites on the eastern side of the island were found to be identical to one another, whereas they differed from those detected at more central sites on the same island. The events that caused these two sets of magnetic swings were then deduced to have been separated by something like thirty years. Moreover, the direction and intensity of these magnetic signals from central Crete were found to match those of the heavy ash fall deposits on the island of Santorini, ancient Thera, while those from the eastern sites matched the signals detected in the deposits that followed Thera's paroxysmal eruption during which the volcano collapsed to form the present caldera.² However, the dating of the Theran eruption has been up in arms for decades and there are some who claim that the destruction which struck Crete could not have been caused by the Theran explosion.³ And yet, while it is not in the interest of this work to go into all that, the matching of the Cretan magnetic signatures with those of the Theran eruption are too good to be ignored.

In the end it was concluded that these swings, including those registered on Attic and Etruscan vases, do not really record a reversal of polarity, but only a geomagnetic excursion.⁴ These excursions are different from reversals in that the behavior of the field becomes erratic to the extent of changing its direction but not enough to reverse itself. There are even cases where the field seems to have looped upon itself. This behavior has been found to be similar to that attending the *onset* of reversals and, for that reason, Hoffman has concluded that such excursions are the result of unsuccessful or aborted reversals.⁵

Such excursions and/or transient pulses have been detected in various places—Oregon, Czechoslovakia, China, Japan, and Australia—which, much like Velikovsky did with the Etruscan and Attic vases, Mandelkehr claims for his proposed global event at 2300 B.C.⁶ Even earlier excursions, orthodoxy dated to millions of years, have been detected in basalt lavas from Iceland, Amsterdam Island, Hawaii, and Australia.⁷

True, these excursions still require an explanation—and we shall have more to say about them in a future volume—but since they are not now accepted as the latest *total* and *semi-permanent* geomagnetic flip, they need not encumber our present work especially since they fall completely outside the span of time with which this particular work is concerned. We shall therefore continue to concentrate on the 10,000-year-ago event.

¹ K. A. Hoffman, "Palaeomagnetic Excursions, Aborted Reversals and Transitional Fields," *Nature* (November 5, 1981), p. 67.

² *Science News* (June 16, 1984), pp. 374 ff.

³ See here, for instance, H. Pilcher & W. Schiering, *New Scientist* (July 7, 1977), p. 17.

⁴ T. W. Field, "Evidence of an Inversion Event?" *AEON* II:1 (June 1989), p. 20.

⁵ K. A. Hoffman, *op. cit.*, pp. 67-69.

⁶ M. Mandelkehr, "Geomagnetic Effects of an Earthwide Event in 2300 BC," *Chronology & Catastrophism Review* (2001:1), pp. 5 ff., where various sources are cited.

⁷ K. A. Hoffman, *loc. cit.*



The tufa cliffs of Thera, modern Santorini, which embody the signature of a geomagnetic swing at the time of their deposit.

(Photograph by the author.)

OBJECTIONS TO BARNES' EXPONENTIAL DECAY

Harking back to Barnes' retrocalculated rate of the geomagnetic field decay, and to be fair all around, it has to be pointed out that he, too, was in error concerning at least one point, and that concerns his unacceptance of polarity reversals.¹ Most of the criticisms leveled against him, however, stemmed from the fact that he had published many of his papers in the *Creation Research Society Quarterly*,² and has been "frequently cited by creationists as proof that the earth is only around ten thousand years old," which, to be sure, was also Barnes' belief.³ Even so, as Professor of Physics at the University of Texas at El Paso, he cannot be said to have been incompetent. And while a lot of the evidence touted by Creationists is

¹ T. G. Barnes, *op. cit.*, pp. 43-44.

² See here the issues for June 1971, June 1972, and March 1973.

³ B. Glenister & B. Witzke, "Interpreting Earth History," in *Did the Devil Make Darwin Do It* (Ames, Iowa, 1983), pp. 82-83.

anything but valid, from a catastrophist point of view, as Jill Abery noted, quite a bit of it is scientific.¹ There has been more than one argument raised in Creationist literature that has stood to embarrass scientific orthodoxy. Evidence should not be judged by the source from which it comes, but, rather, by its factual foundation. It is mainly the conclusions derived by Creationists that are usually at fault. After all, it is a far cry from deducing that a cosmic catastrophe ensued 10,000 years ago to claiming that Earth cannot be older than that. So how valid, then, is Barnes' methodology? Is the accusation that his figures suffer from the fact that they are based on the decay rate of too short a time valid?

Much like Milsom, the team of B. Glenister and B. Witzke pointed out that "at times in the geological past [Earth's magnetic field] was stronger than at present and at other times weaker."²

"In addition, the polarity of the earth's magnetic field has reversed, back and forth, many dozens of times during the Phanerozoic. These observations refute the exponential decay model of Barnes."³

As we have seen, if we take the magnetic excursions discussed above into consideration, this seems to be true—unless, of course, it can be shown that these later aberrations were local in nature. But if, as we have also seen, the geomagnetic field was reversed around 10,000 years ago, it would have had to decay in the opposite direction to register as normal by the time of the Hallstat culture around the tenth century B.C. with Mandelkehr's 2300 B.C. event in between. Nor can we tell, at least at present, how many reversals and/or aborted reversals might have transpired between these three dates. The most that we can hold on to, once again, is that a reversal took place around 10,000 years ago which, as Warlow was objective enough to note, *is the most recent complete and durable one that would be acknowledged by geologists.*

COSMIC RAY DISCHARGE

The notion that Earth's magnetic field has fluctuated up and down through the years received a boost from the study of crystallized rat urine. But what has rat urine to do with Earth's magnetic field?

Collections of crystallized pack-rat urine in the form of globs are known as middens, and these usually contain sticks, bones, fragments of plants and animal dung which the pack-rats collect and carry to their dens. Found primarily in arid regions of North and Central America, pack-rat middens have been studied in an endeavor to discover past climatic changes which can be ascertained from the nature of the rubbish they contain. What transpires is that the collected items become saturated in urine which, as it evaporates in dry climates, tends to crys-

¹ J. Abery, "The Evolutionist-Creationist Battle: A Threat to Catastrophist Evolution," *SIS Workshop* 4:4 (March 1982), p. 2 (emphasis as given).

² B. Glenister & B. Witzke, *loc. cit.*

³ *Ibid.* see also, G. B. Dalrymple, *Journal of Geological Education* (March 1983), pp. 124-133.

tallize and thus envelope the collection much like insects are trapped in amber. Looking a little like candy, they have even been mistaken exactly for that and eaten by early prospectors working in Nevada who found them sweet, but "sickish" enough to cause nausea.¹

"A pack-rat midden," the paleoecologist Peter Wigand explains, "is a snapshot of the flora and fauna existing within about 50m of the midden at the time it was accumulating."² By dating the middens, scientists can tell what the climate was like at that particular time. Thus, for instance: "Using midden evidence of tree growth and distribution in the Mojave Desert, botanist W. Geoffrey Spaulding...determined that average desert temperatures during the *height* of the last Ice Age, about 18,000 years ago, were 6°C colder than they are today."³

Of greater importance to our study, however, middens "can reveal changes in the heavens as well as on earth."⁴ This was demonstrated by the hydrologist Fred Phillips by checking an ancient midden for evidence of cosmic ray bombardment. As Leon Jaroff explains, "highly energetic cosmic-ray particles create the radioisotope chlorine 36 when they strike argon atoms in the atmosphere" and the isotope then "finds its way into plants and the urine of mammals, including the pack-rat."⁵ Calling on the aid of radio-chemist Pankaj Sharma, Phillips "compared the amount of chlorine 36 in the midden urine with contemporary values, and concluded that cosmic-ray bombardment was 41% more intense 21,000 years ago than it is now."⁶

"This suggests that the earth's magnetic field, *which acts as a partial barrier to cosmic rays*, was then considerably weaker."⁷

There is one problem here and it concerns the dating of the middens which is derived through the radiocarbon method in which, for reasons already supplied, we do not have much faith. So let us not take that "21,000 years ago" as an *exact* figure. The best that we can do is accept the date as having been *earlier* than our benchmark figure of 10,000 years ago. What this means is that, at that time, Earth's magnetic field was less than 0.62 gauss. But if, as already noted, it has also been discovered that Earth's magnetic field was three times stronger than at present during the time of the dinosaurs, it would mean that it had decayed between then and that approximate 21,000 years ago. If that, however, is the case, the field would then have had to have been boosted some time later than 21,000 years ago in order for it to be able to decay once more to its present low value.

PROPOSED CAUSES

Returning now to polarity reversals we ask: What *could have* caused Earth's magnetic field to reverse itself? As M. Fuller noted, the "rapidity and large amplitude of geomagnetic

¹ L. Jaroff, "Nature's Time Capsules," *TIME* (April 6, 1992), p. 45.

² *Ibid.*

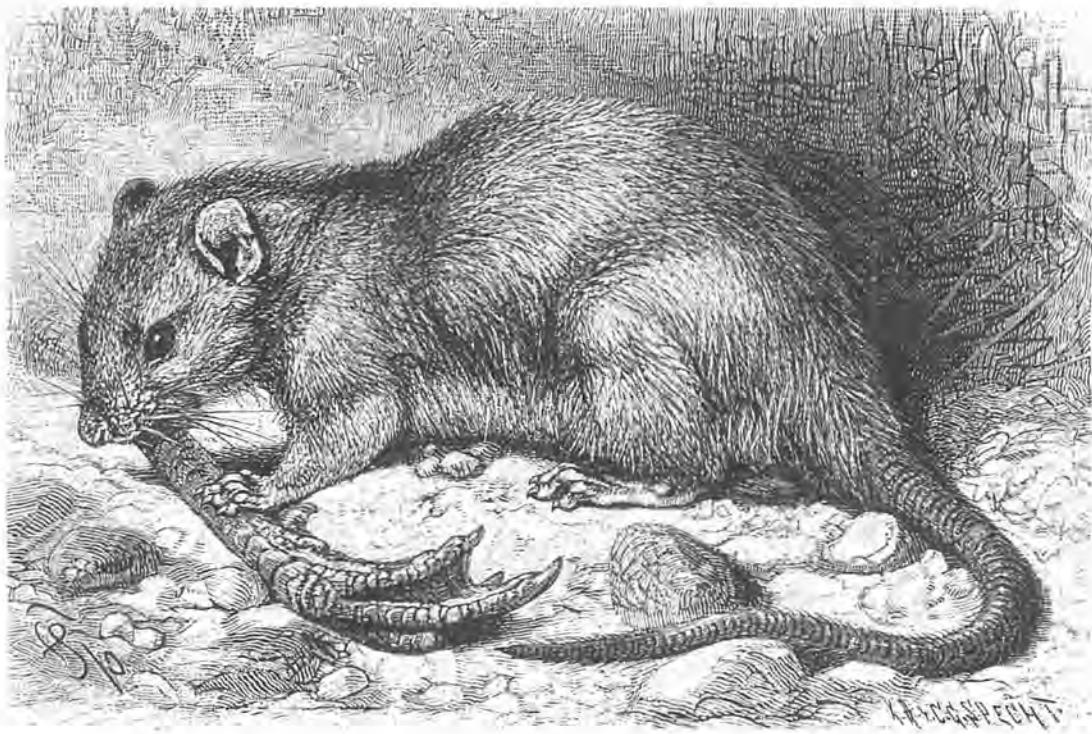
³ *Ibid.* (emphasis added).

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.* (emphasis added).



Ancient pack-rat middens can reveal changes on Earth as well as in the heavens.

variation...even when regarded as an impulse during a polarity transit, truly strains the imagination."¹ Worse still, as admitted by Mandelkehr: "There is no firm agreement as to the causal source of these reversals."²

By 1972, some authorities, including Harold Urey, were of the opinion that geomagnetic reversals can be caused by Earth's interaction with external bodies such as comets or meteoric swarms.³ (The irony here is that Urey had once served as one of the most bitter critics of Velikovsky who had earlier proposed just such a cause.) This was later taken up by Victor Clube in his endeavor to ascribe just about all past catastrophes to Earth's interaction with comets and cometary debris. As he wrote:

"Lesser impacts which are more common are quite capable of reversing the Earth's magnetic field...No other theory explains this particular phenomenon at the moment..."⁴

¹ M. Fuller, "Fast Changes in Geomagnetism," *Nature* 339 (1989), pp. 582-583.

² M. Mandelkehr, *loc. cit.*

³ *Nature* (October 6, 1972), p. 18.

⁴ V. Clube, "Cometary Catastrophes and the Ideas of Immanuel Velikovsky," *S.I.S. Review* V:4 (1980/81, but issued in December of 1984), pp. 107, 108.

This was emphasized and elaborated upon by Clube and his co-author, Bill Napier, in their *opus magnum* of 1982. As they there explain:

“Whatever mechanism operates, the geomagnetic dynamo [which is held to be responsible for the generating of Earth’s electro-magnetic field] is apparently very unstable and this is supposed to give rise to spontaneous field reversals...Suppose now that the Earth was struck by a comet or an asteroid, moving at some random angle...Because the crust and mantle are very rigid they will respond as a whole, and within the global travel time of earthquakes (say less than an hour) they will have acquired a new velocity and axis of rotation. *The change in both will be minute*...However the core, being liquid, will at first carry on rotating in the old sense. This modest impact is therefore enough to spin the overlying mantle, creating friction at the boundary of core and mantle so forcing a completely new velocity pattern on to the circulation currents at the top of the core...There is therefore, over this period, a major redistribution of velocities within the core, and since as we have seen the geomagnetic dynamo is very unstable, one expects that the magnetic field will be strongly perturbed and may rapidly flip over.”¹

The problem with this scenario, as Clube and Napier themselves state, is that the change in the velocity of Earth’s rotation and the direction of its axis resulting from such an impact “will be minute.” It is difficult to conceive how such a minute change could completely flip Earth’s magnetic field. Even if such a reversal would have been *initiated* under such conditions, it is doubtful that the reversal would have been *completed*. The best that one can expect from such a minute change is an aborted field reversal, that is an excursion, as described above—which would still leave complete and durable reversals unexplained.

The notion that geomagnetic reversals can be caused by cometary and/or asteroidal impacts did not go away. Years after Clube and Napier proposed their theory, and without even a nod in their direction, Richard Muller and Donald Morris, who then hailed from California’s Lawrence Berkeley Laboratory, claimed that “there is strong evidence” for exactly what Clube and Napier had proposed. What these two theorists suggested is that if such a body, “nearly two miles in diameter,” were to hit Earth “at a speed of 5,600 miles per hour,” the dust and smoke that it would raise would block sunlight long enough to cause “a drop in land temperatures.”²

“But since water retains heat longer than soil, the oceans remain relatively warm. The result is a sudden (within a few hundred years) drop in sea level, by 33 feet or more. This in turn changes the rotation rate of Earth’s crust and mantle relative to its liquid core. Result: a switch in the magnetic field.”³

¹ V. Clube & B. Napier, *The Cosmic Serpent* (London, 1982), pp. 126-127 (emphasis added).

² A. Fisher, “Geomagnetic Reversals.” *Popular Science* (March 1987), pp. 8-9.

³ *Ibid.*, p. 9; see also R. A. Muller & D. E. Morris, “Geomagnetic Reversals from Impacts on the Earth,” *Geophysics Research Letters* 13 (1986), pp. 1177-1180; *idem*, “Magnetic Reversal Rates and Sea Level.”

At first sight, this appears to be a marriage between the theories of Clube and Napier and that of Peter Warlow—discussed earlier—whom they also fail to mention. But, for one thing, as already noted, geomagnetic reversals occur much faster than the “few hundred years” expected through this method; and, for another, rather than causing “a drop in land temperatures,” the 10,000-year-ago event coincided with the *end* of the Pleistocene Ice Age. Thus, in effect, our own hypothesis is likewise in direct opposition to that proposed by Mandelkehr who is also of the belief that “there was a glacial *buildup* and resultant geomagnetic effects”—even though this was in defense of his posited 2300 B.C. catastrophe.¹

An actual reversal associated with the impact of an extraterrestrial body has, however, been reported. This reversal seems to have taken place following the Tunguska impact event of 1908. Whatever it was that exploded over this region, a meteor, comet, or whatever else it might have been, it left no crater behind, although it did level the forest for miles around. What is of interest here is that, according to a student at Odessa University, a magnetic reversal was detected in the adjacent soil over an area “at least 3,500 square kilometers” in extent.² But since this magnetic reversal does not seem to have been recorded from anywhere else, it would have to be assumed that it was local in character. In fact, as Eric Crew surmised, “this might have been the result of a very powerful flow of atmospheric electricity in the ionised path of the meteor to ground from the huge store of charge in the upper atmosphere.”³

Peter Warlow, on the other hand, was of the opinion that a geomagnetic reversal due to “some outside influence” seems to be “rather improbable.”⁴ He also finds improbable those suggested causes which rely on the *ad hoc* theory that Earth may be acting as a double dynamo; or that Earth’s core is subdivided into an inner and outer region, again acting as independent dynamos with oppositely directed fields; and/or that Earth’s interior consists of a series of nested shells which produce an alternating succession of field directions.⁵

The objection here is that the terrestrial dynamo is itself based on an assumption. Thus, for instance, although Hannes Alfvén takes the existence of dynamos in the interior of planets into consideration,⁶ he cautions experimentalists against total acceptance of the assumption.

“There are a large number of well-known theories of self-exciting dynamos [he wrote]. Space dynamos have been attributed to plasma turbulence, but...there is no convincing evidence that turbulence in the real sense ever exists in cosmic plasma. Even the usual models of dynamo processes in the interiors of celestial bodies seem to encounter difficulties...so that alternatives to those should also be considered.”⁷

Nature 332 (1988), p. 211; but see also K. A. Hoffman, “Ancient Magnetic Reversals: Clues to the Geodynamo,” *Scientific American* (May 1988), pp. 76-83.

¹ M. Mandelkehr, *op. cit.*, p. 5 (emphasis added).

² *Science in USSR*, No. 3 (1983), p. 88, as cited in *SIS Workshop* 6:1 (May 1985), p. 30.

³ E. Crew, as cited in *ibid.*

⁴ P. Warlow, *The Reversing Earth* (London, 1982), p. 54.

⁵ *Ibid.*, pp. 54-55.

⁶ H. Alfvén, *Cosmic Plasma* (Dordrecht, Holland, 1981), pp. 87, 114.

⁷ *Ibid.*, p. 87 (emphasis added).

If the theory of Earth's dynamo is on shaky ground, any proposals that Earth may be acting as a *double* dynamo, or that it possesses *independent* dynamos, or that it generates a *suc-
cession* of alternating fields, would have to be on even wobblier grounds.¹

Now, as Warren Carey tells us, "the earth does not rotate as a solid body, for the mantle is slowly overrunning the core" just as "the atmosphere is slowly overrunning the surface."² This well-known process led Warlow to his own postulate concerning the manner in which Earth's field could be reversed.

"All of the efforts by conventional scientists to explain the magnetic reversals have concentrated on what seems to be the obvious problem, namely to find a way of reversing the field. There is, however, another possibility. That possibility *is to leave the field alone and turn the Earth over instead.*"³

In such a case, according to Warlow, Earth's shell, or mantle, would turn over, while the core would not. "It is, of course, unlikely that anyone would have been worrying about measurement of the field during the actual inversion," he wrote, "but, for the periods before and after, there would be the same result as for the rotation, namely that the field would appear to have been reversed with respect to the surface features."⁴

But then, as William Field noted, "in recent years considerable progress seems to have been made in developing models that attempt to explain the alternate possibility—*that the field has flipped many times while the mantle has remained in place.*"⁵ For us, of course, a reversal of Earth's shell as a means of an *apparent* reversal of the geomagnetic field runs into an additional problem. Had Earth's shell slipped off the core in order for the geomagnetic field to appear to have reversed, the shell would have to have slipped 180 degrees. In our scenario, this would mean that proto-Saturn would have been seen to leave its north celestial polar placement, slip down the sky, disappear from the latitudes of the northern hemisphere, and take up a new position in Earth's south celestial pole. Unfortunately there is absolutely nothing in the mytho-historical record that as much as hints at such a displacement *any time shortly following proto-Saturn's flare-up.*

Even as I write this, a curious discovery has come to light through satellite measurements. Far below the southern tip of Africa there exists a small region the magnetic polarity of which is opposite to that of its surroundings—in effect a local reversed polarity. Similar patches were detected near the North Pole. Gauthier Hulot and his colleagues have theorized that these reversed patches are "presumably eddies that are working against the primary motion of [Earth's] core" and that "their growth" can therefore "explain the current

¹ And see here J. A. Jacobs, "What Triggers Reversals of the Earth's Magnetic Field?" *Nature* (May 10, 1984), p. 115.

² S. W. Carey, *Theories of the Earth and Universe* (Stanford, California, 1988), p. 31.

³ P. Warlow, *op. cit.*, p. 55 (emphasis added).

⁴ *Ibid.*, pp. 56-57.

⁵ T. W. Field, *op. cit.*, p. 20 (emphasis added).

decline in [Earth's] dipole field." Moreover, as they believe, "the rampant growth of such patches has caused full-blown reversals," but only "in *some* computer simulations."¹

Unlike the paleomagnetic stripes found mirrored on both sides of mid-ocean ridges and the paleomagnetic signatures imprinted on ancient ceramics, these patches do not contain *fossilized* magnetism. They are very much "alive" so that a compass within their areas would actually register the reversed polarity.

It is obvious, however, that if *some* computer simulations indicated full-blown reversals due to the "rampant growth" of such patches, other simulations did not. But if "full-blown reversals" are really caused by the "rampant growth" of such patches, *all* computer simulations should indicate it. What this *does* indicate is that computer simulations are reliant on the data that is fed into them.

Moreover, while Hulot and company speak glibly of the "rampant growth" of these reversed patches, they provide no evidence for such "growth." Counter-acting eddies these patches might very well be, but nature is rampant with anomalies since it has always been impervious to man-made laws. This is evidenced by the anomalous magnetic fields of the other Solar System planets,² a situation which led Michael Zeilik to remark that they constitute nothing short of "a magnetic mess."³ Or, as David Stevenson was honest enough to confess: "Planetary dynamo theorists have yet to be able to predict anything about planetary magnetism..."⁴

Can we, then, ever find the real cause behind Earth's magnetic field decay and its polarity reversals?

EX HYPOTHESI

Earth's magnetosphere is essentially an electric phenomenon. Any interference with it has to come from an electrical impetus. "The postulation of [an electric] charge," noted Eric Crew, "may also account for the nature of the supposed luminosity of the planet in the past, the evidence for electrical discharges to Earth and its atmosphere, and the powerful flow of current in the crust of the Earth due to the movement of induced charges, which would cause corresponding changes in the terrestrial magnetic field."⁵ Although Crew was here referring to the planet Venus in relation to Velikovsky's theory, his words could be made to apply just as well to proto-Saturn.

As it has finally become generally known, cosmic magnetic fields are embedded in plasmas,⁶ and since 99% of the Universe is now known to consist of plasma, it stands to reason that space must be permeated with magnetic fields.

¹ S. Simpson, *loc. cit.* (emphasis added).

² See here D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 400-401, 418; re the anomalous magnetism on Mars, see also M. T. Zuber, "Mars: The Inside Story," *Sky & Telescope* (December 2003), pp. 45-46.

³ M. Zeilik, *Astronomy: The Evolving Universe* (N. Y., 1985), p. 160.

⁴ R. O. Fimmel, *et al.* (Eds.), *Pioneer Venus*, NASA SP461 (Washington, D. C., 1983), p. 154.

⁵ E. Crew, "Glasgow Still Proceeds," *S.I.S. Review*, Vol. VII, Part A (1982/3-1985), p. 36.

⁶ G. Musser, "Magnetic Anomalies," *Scientific American* (August 2000), p. 22.

In the past, magnetism was not considered a main force in the Universe. As George Musser reported: "Magnetism had long been considered a side attraction in astronomy—hard to measure, hard to master, seemingly easy to neglect." By mid 2000, however, astronomers came to realize that magnetic fields are "one of the greatest shaping forces of the universe." Our own galaxy, the Milky Way, was found to possess a magnetic field. Other galaxies have similar fields. "When researchers began to look for fields in between galaxies in the late 1980s," Musser went on, "their expectations were low." When intergalactic fields were eventually encountered in 1990, "it came as a surprise." Theorists were so puzzled that they "took refuge" in the belief that what they had discovered in the interstices of the Coma cluster of galaxies "was a fluke." But, as it turned out, twenty-four other galaxy clusters were also found to possess "galactic-strength fields." These fields "are as potent as other cosmic forces, so they can no longer be ignored in models of galaxy formation and other celestial goings-on." Or, as Stirling Colgate better phrased it: "These magnetic fields are the dominant free energy of the universe."¹

It is through this intergalactic field that proto-Saturn, together with Earth, would have been traveling while still outside the Solar System. Both Earth and proto-Saturn would have possessed their own electromagnetic fields. What the power of those fields were is temporarily unknown.

Lightning is an electrical phenomenon. It can provide an electrical impetus. As Velikovsky noted, lightning, or a thunderbolt, can actually reverse magnetic poles.² Carl Sagan criticized Velikovsky for not having given this statement adequate justification.³ But that lightning can magnetize rocky outcrops and even reverse their polarity had been known before Sagan penned those words.⁴ Of course, in Velikovsky's case, the thunderbolt he had in mind in connection with the reversal of Earth's magnetic field was an interplanetary one.

"A thunderbolt, on striking a magnet, reverses the poles of the magnet [he wrote]. The terrestrial globe is a huge magnet. A short circuit between it and another celestial body could result in the north and south magnetic poles of the earth exchanging places."⁵

A stroke of lightning, or a thunderbolt, is an electrical discharge. So are solar flares. That oscillations in the pulses of the Sun itself affects Earth's magnetosphere has been demonstrated by B. M. Vladimirskij and his colleagues.⁶ Being electrical discharges, solar flares are just as disruptive. As it was reported in *Science Digest*, should this "surge of electrically

¹ *Ibid.*

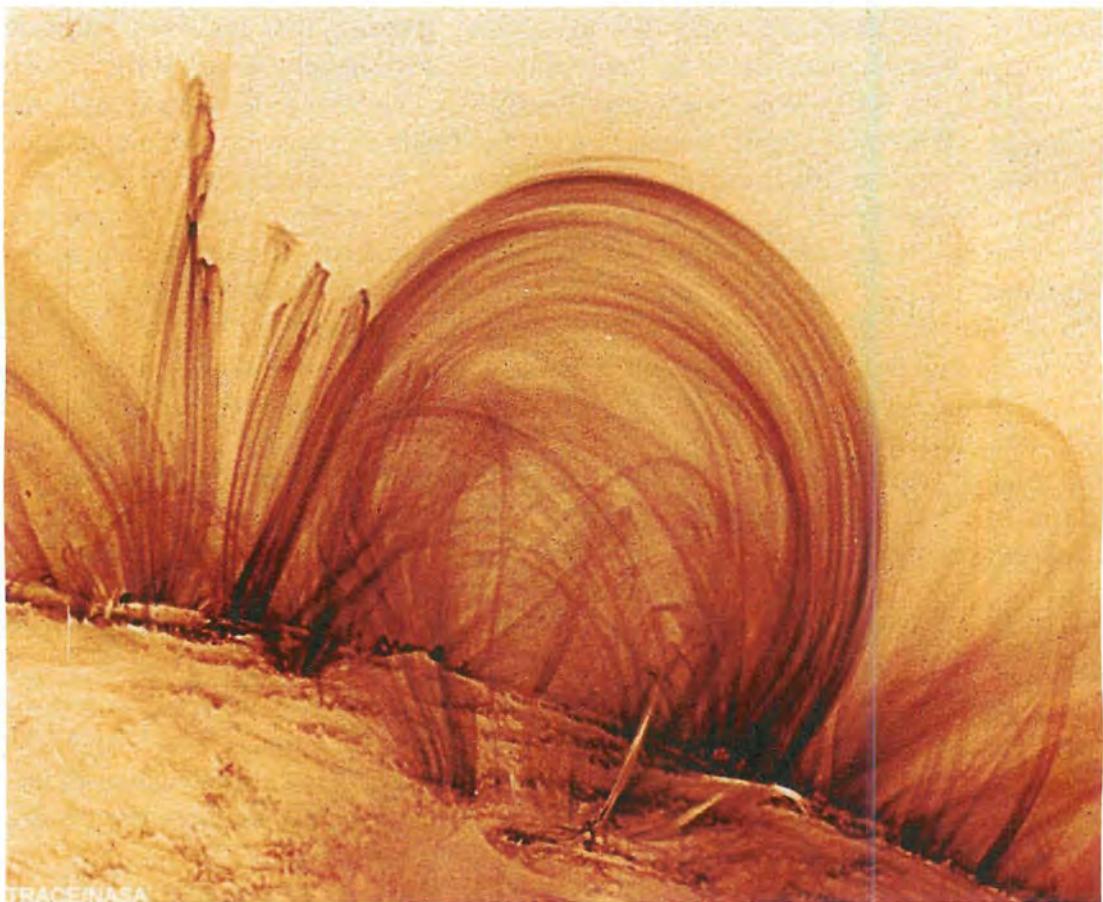
² I. Velikovsky, *Worlds in Collision* (N. Y., 1950), p. 114.

³ C. Sagan, "An Analysis of *Worlds in Collision*," in D. Goldsmith (Ed.), *Scientists Confront Velikovsky* (Cornell University, 1978), pp. 54-55.

⁴ C. Ginenthal, *Carl Sagan & Immanuel Velikovsky* (Tempe, Arizona, 1995), pp. 66-67

⁵ I. Velikovsky, loc. cit.

⁶ B. M. Vladimirskij, *et al.*, "Oscillations in the Magnetosphere of the Earth with a Period of 160 Minutes Caused by the Pulsations of the Sun," as abstracted in *Astronomy and Astrophysical Abstracts*, Vol. 31, Part 1 (1982), p. 296.



Solar flares—electrical discharges of a powerful nature—can also disrupt Earth's magnetic field.
(Photograph courtesy of NASA.)

charged particles” from a solar flare head toward Earth, “three days later this gust of ‘solar wind’ would sweep over our planet, disrupting its magnetic field.”¹ Moreover, as already noted, some Sun-like stars are now known to emit superflares.²

“Sifting through observations as far back as 1899, [Bradley] Schaefer found nine instances of superflares by sun-like stars. In each case, the star brightened by 10 percent to 1,000 percent for a period lasting about an hour. The smallest of the nine superflares was 100 times larger than the largest flare that’s been seen shooting out of our sun.”³

¹ “Solar-Gas Wind Gusts,” *Science Digest* (December 1981), p. 19.

² K. Chang, “Superflares Can Zap Planets—Astronomers Puzzle Over Other Stars,” *ABCNEWS.com* (January 6, 1999).

³ *Ibid.*

If our Sun ever emitted such a superflare, Kenneth Chang reported on ABC News, “the results on Earth could range from pretty to devastating.” Eric Rubenstein, however, informs us that our Sun “does not have superflares as far as we can tell.” True enough—but not quite so true when it is also proclaimed that there is “no evidence that our sun has *ever* suffered a superflare...”¹ As Wallace Thornhill pointed out, this is exactly the type of discharge that was emitted by the Sun toward proto-Saturn once its plasmasphere came in contact with the Sun’s heliosphere. “In proto-Saturn’s case,” Thornhill tells us, “the entry into the solar plasmasphere would have required rapid adjustment to the new electrical environment where the Sun was the main focus of electrical activity.”²

If an ordinary solar flare can disrupt Earth’s magnetic field, the enormous superflare-like discharge emitted by the Sun toward Earth and its proto-Saturnian primary would have wrought magnetic havoc in both bodies. It would also have wrought havoc with the fields of whatever planets were already in the Sun’s domain. To be sure, this discharge cannot honestly be termed a superflare, which is why I have alluded to it as a *superflare-like* discharge. It might not even have been visible. Even if it was, man would have hardly remembered it, seeing that it would have merged with proto-Saturn’s own flare-up. All that man would have seen would have been a blinding flash centered on proto-Saturn. Moreover, proto-Saturn would have received the main jolt of the Sun’s discharge, but part of this charge would then have been relayed to Earth. It is this secondary charge that would have most affected Earth’s magnetic field. And since we have now tied proto-Saturn’s flare-up to our 10,000-years-ago benchmark, with the last accepted geomagnetic reversal dated to around the same time, we can feel confident that it was this powerful electrical surge that was responsible for that reversal.

What must also be kept in mind is that geomagnetic reversals are directly associated with the field’s decay. As we have seen, Earth’s field has been calculated to have been “considerably weaker” than at present prior to 10,000 years ago. This led us to assume that it must have received a boost between then and our benchmark date. This, in its turn, receives confirmation from the fact that reversed magnetized rocks are up to a thousand times more strongly magnetized than Earth’s present field would allow. “This is one of the most astonishing problems of paleomagnetism,” H. Manley reported, “and [one that] is not yet fully explained, although the facts are well attested.”³ This boost, we here venture to say, would have also been the result of the discharge from the Sun. Following that, the field would have commenced on its decay in its attempt to adjust to the Sun’s own field of influence.

All of which, we are sure, would have already been suspected by our attentive readers. The same attentive readers would also want to know what would have caused the recorded geomagnetic reversals *prior* to 10,000 years ago. After all, in our scheme, the proto-Saturnian system would have only entered the Sun’s domain of influence once. As tacky as that problem might seem to be at this point, we will be providing its probable solution in its proper place later in this work.

¹ *Ibid.* (emphasis added).

² W. Thornhill, “Superflares,” *Thoth* (electronic newsletter) III:1 (January 24, 1999), p. 10.

³ H. Manley, “Paleomagnetism,” *Science News* (July 1949), p. 59.

Chapter 18

Out of the Freeze

THE HEAT WAVE

One abrupt change that man would have immediately noticed following proto-Saturn's flare-up would have been the sudden heat-wave that would have engulfed Earth. This brings to mind one of the most fascinating, even if somewhat convoluted, myths of Creation, that told by the North American Lakota, otherwise known as the Sioux. This myth contains many particulars that have already been discussed both in this work and our previous one. Thus it is told that the first and only entity to ever exist was Inyan and, like the Saturnian deities of other nations, he existed in "the time when there was no time."¹ With him, however, was also his "spirit," known as Wakan Tanka, the Great Mystery.² This "spirit," which elsewhere we have seen equated with "wind" and even "hurricane," was the same "spirit"—that is *ruach*—which the Old Testament associates with Elohim.³ Identifiable as the universal mytho-historical polar column, or *axis mundi*, as noted in our previous volume, this phenomenon is understood as the sustained, yet rotating, jet-like Birkeland current that stretched between Earth and proto-Saturn.⁴ Also anthropomorphized as the deity's mighty phallus, we have, in this very work, already seen this same phenomenon retracting itself just prior to proto-Saturn's flare-up.

Inyan himself, it was told, was shapeless⁵—that is he lacked all limbs and/or protuberances. He thus compares favorably with the Eskimo Ataksak and the Roman Janus, both of whom were described as having originally had the shape of a mere sphere.⁶ And, once again like the Saturnian deities of other races, he lived in darkness.⁷

In that curious manner which in time became the hallmark of all mythology, various Lakotan aspects of the proto-Saturnian configuration, including Earth, were ultimately endowed with human characteristics and emotions including envy and/or jealousy. Thus it was that Earth was said to have complained because "she was cold"⁸—a direct allusion to the frigid climate of the Pleistocene Ice Age. She therefore demanded that Inyan banish the darkness, at which point light was created.⁹

¹ S. Eddy, *Native American Myths* (London, 2001), p. 9.

² *Ibid.*

³ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 429 ff., 438 ff.

⁴ *Ibid.*, pp. 458 ff.

⁵ S. Eddy, *loc. cit.*

⁶ Ovid, *Fasti* I:111; M. Fauconnet, "Mythology of the Two Americas," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 427.

⁷ S. Eddy, *loc. cit.*

⁸ *Ibid.*

⁹ *Ibid.*, p. 10.

"Now there was light everywhere, but this was still not good enough...for there was no warmth and no shade." In order to dispel the cold, Wi was next created. "Wi shone on the world and everything became hot and bright."¹ In time, the Lakota came to understand this Wi as "the brilliant disc of the sun." As we know from other myths, the Sun did eventually come into view.² But that Wi was proto-Saturn in its new radiant phase rather than the present Sun is indicated by his original immobility in the sky. As already noted, it was precisely at this time, following its flare-up, that proto-Saturn began to shine as a true sun. What is also of importance to our present topic is the statement that, unfortunately, this new sun gave "no respite from the burning heat."³

This heat at the beginning of Creation is reiterated by the Maidu of California. Great Man, which is what the name of the Maidu Creator translates into, was he who created the so-called "world." As these natives relate: "At first the earth was very hot, so hot it was melted..."⁴ Nor is this merely an Amerind tradition since this belief is also encountered half a world away in India. In speaking of *tapas*, the bodily heat said to be experienced by some mystics, Heinrich Zimmer informs us that in Vedic lore "such energy is employed by the gods themselves to many ends," one of which is "the purpose of creation." The Creator is said to heat himself "and thereby produces the universe." And, quite often, this is accomplished "by internal incandescence."⁵

X-RAYS AND DOUBLE LAYERS

This heat wave would have had more than one cause. To be sure, supernovae have been said to produce "a brief global cooling" on Earth.⁶ This, however, is not a universally adhered to assumption. In fact, A. C. Aikin and his colleagues came to the opposite conclusion "that upper atmosphere warming would result" on Earth from a distant supernova.⁷ As we shall soon indicate, this is much more likely. In any event, while not exactly a supernova, proto-Saturn's flare-up, at close proximity, would have warmed Earth's upper atmosphere even more.

As is now known, dwarf stars, like any other stars, cool down with age. Added to that, red dwarfs often display spots which are "far larger than those seen on the Sun." These "star-spots," as Ken Croswell alludes to them, "can cause the star to dim by up to 40 per cent for several months at a time." But also: "At other times, red dwarfs brighten dramatically, spewing large flares that can more than double the star's brightness in a matter of minutes."⁸ Al-

¹ *Ibid.*

² D. Cardona, *op. cit.*, pp. 337-340.

³ S. Eddy, *op. cit.* (emphasis added).

⁴ R. Van Over, *Sun Songs: Creation Myths From Around the World* (N. Y., 1980), p. 39.

⁵ H. Zimmer, *Myths and Symbols in Indian Art and Civilization* (Princeton, 1974), p. 116.

⁶ G. R. Brakenridge, "Terrestrial Paleoenvironmental Effects of a Late Quaternary-Age Supernova," *Icarus* 46 (1981), pp. 81, 86; see also D. H. Clark, *et al.*, "Frequency of Nearby Supernovae and Climatic and Biological Catastrophes," *Nature* 265 (1977), pp. 318-319.

⁷ A. C. Aikin, "Supernovae Effects on the Terrestrial Atmosphere," *Planetary Space Science* 28 (1980), pp. 639-644.

⁸ K. Croswell, "Red, Willing and Able," *New Scientist* (January 27, 2001), pp. 30-31.

though we have posited proto-Saturn to have been a sub-brown, rather than a red, dwarf star, this is precisely what would have transpired to proto-Saturn during its flare-up. No longer the dim red orb it had formerly been, it had now become incandescent, continuing to radiate both light and heat for a long time afterwards.

We have also seen that plasmatic double layers are wont to explode if their circuit is disrupted, as would have transpired once proto-Saturn's plasmasphere came in contact with the Sun's heliosphere. Accelerated particles from the Sun's outburst would have interacted with the plasma. As Hannes Alfvén tells us, in such cases these particles would "produce a number of secondary effects so that the released energy finally is dissipated as *heating and radiation*."¹ As he also cautions, this energy cannot be accounted for through any sort of magnetic field disruption, but, "of course," as we have already seen, "the secondary effects of the explosion also cause changes in the magnetic field."²

A third source of this heat would have come from proto-Saturn's emitted X-rays. We need not repeat that supernovae are known to emit such rays, as so, also, do brown dwarf stars. The amount of X-rays generated by proto-Saturn through its flare-up must have been prodigious. As Donald Goldsmith tells us, X-rays, no matter how produced, "are the sign of hot gas." And, "the amount of X-ray emission reveals how much hot gas exists, and how high its temperature is."³ It is not at present feasible to calculate the amount of X-rays emitted by proto-Saturn's flare-up, but the heat generated through them in close proximity to Earth would definitely have added to that generated by the explosion of proto-Saturn's plasmatic double layer. At close proximity, most of this heat would have bathed Earth and its inhabitants.

TERRESTRIAL BRAKING

Earth, too, would have produced its own heat. And this brings us back to solar flares. These flares from the Sun do not only affect Earth's magnetic field, they also tend to slow down Earth's rotation. This came to light in 1956 when André Danjon detected a sudden deceleration of Earth's rotation following a solar flare.⁴ A repeat performance then took place in 1960. The explosion on the face of the Sun caused quite a bit of havoc down here on Earth. As Herman Friedman described it:

"Six hours [after the flare], a gigantic cloud of solar hydrogen gas, ten million miles across and still trailing halfway back to the Sun, 93 million miles away, collided with the Earth at a speed of four thousand miles a second.

"Though inaudible and invisible, the collision started a violent chain of disturbances on and around the Earth, an electric and magnetic storm of mammoth proportions. Compass needles swerved erratically. For hours, all long-distance radio communications were blacked out. Teletypes printed gibberish. Overhead, sheets of flaming-red

¹ H. Alfvén, *Cosmic Plasma* (Dordrecht, Holland, 1981), p. 33 (emphasis added).

² *Ibid.*

³ D. Goldsmith, *Einstein's Greatest Blunder?* (Harvard University Press, 1995), p. 159.

⁴ A. Danjon, *Comptes Rendus de Séances de l'Academie des Sciences*, 247 (1958), p. 2061.

northern lights flashed in the night sky, bright enough to be seen through overcast and clouds. Electric lights flickered in farmhouses as if a thunderstorm raged, *yet the air and sky were clear and silent.*¹

This state of affairs continued for more than a week, but, as Friedman noted, “such a storm amounts to no more than a tiny ripple in the usual steady flow of solar energy.”² Earth was also slowed down, and the length of the day again increased. True enough, as before, it did not increase by much, only by 0.85 milliseconds, thereafter decreasing at the rate of 3.7 microseconds per day. Earth’s rotation eventually stabilized close to its pre-flare value.³ To say that Danjon took scientists by surprise would be putting it mildly. As Ralph Juergens reported:

“This announcement raised quite a few eyebrows. Quite impossible, said the experts...Danjon, anticipating such objections, argued that ‘it is very likely electromagnetism...that will furnish the explanation for these variations...’ But his claim was generally disregarded.”⁴

But then, following Danjon’s death in 1967, it happened again. This transpired in August 7-8 of 1972 “following a week of frenzied solar activity.”⁵ This event was reported by Stephen Plagemann and John Gribbin who found that the length of the day had suddenly increased by more than 10 milliseconds, following which there ensued a gradual return to normal.⁶ As with Danjon, Plagemann and Gribbin were met with disbelief and even derision.⁷ Gribbin, however, went further. He correlated the solar activity in the past with terrestrial rotation for a period commencing around 1820 all the way to almost 1980. This correlation showed that when the Sun was more active than usual, the length of the day increased through a decrease of Earth’s rotational velocity, with the opposite effect taking place when the Sun had been less active.⁸ (Unfortunately, through the publication of their 1974 book—*The Jupiter Effect*—in which it was postulated that the alignment of planets on one side of the Sun would cause widespread earthquakes, these two got into scientific hot water when their prediction failed to materialize.) By 1981, however, not only solar flares, but also sunspot variations were shown to affect Earth’s axial rotation.⁹

¹ H. Friedman, *Our Amazing World of Nature: Its Marvels and Mysteries* (N. Y., 1969), p. 261 (emphasis added).

² *Ibid.*

³ A. Danjon, *Comptes Rendus de Séances de l’Academie des Sciences*, 250: 8 (February 22, 1960), p. 1399; see also *idem*, in *ibid.* 250:15 (April 11, 1960).

⁴ R. E. Juergens, “On the Convection of Electric Charge by the Rotating Earth.” *KRONOS* II:3 (February, 1977), p. 15 (first & second ellipses added, third ellipses as given).

⁵ *Ibid.*

⁶ J. Gribbin, *New Scientist* (May 10, 1975), p. 339.

⁷ See, for example, *Science News* (September 1, 1973), p. 136.

⁸ J. Gribbin, *Death of the Sun* (N. Y., 1980), p. 131.

⁹ D. Djurovic, “Solar Activity and Earth’s Rotation.” *Astronomy & Astrophysics*, Vol. 100 (1981), pp. 156-158; see also *idem*, “Short-Period Geomagnetic Atmospheric and Earth-Rotation Variations,” in *ibid.*, Vol. 118, No.

There were, however, some who sought the slowing down of Earth's rotation on the dates discussed above as due to something other than an electromagnetic effect. According to James Warwick, for instance, "current thinking is that [the] Danjon effect is due to solar irradiance in the ultraviolet expanding the atmosphere which increases the moment of inertia and slows the rotation."¹ But, as Juergens had earlier pointed out, an electric charge, as in solar flares, is more likely to do the job. This is evidenced by the fact that an electric charge placed on a rotating flywheel will increase its polar moment of inertia. A similar, but more powerful, charge placed on Earth would therefore also increase its polar moment of inertia. But, because of the conservation of angular momentum, this increase has to be accompanied by a decrease in the angular velocity of rotation.² How, then, would Earth return to its previous rate of spin? Juergens tells us that:

"If the Earth's customary burden of charge reflects the requirements of its customary environment [as at present], any excess charge acquired during an extraordinary event [as in our scenario] will presumably be dissipated into the environment rather quickly in the aftermath of that event. The Earth, [which would then be] effectively 'grounded' to the [new] interplanetary medium, must almost immediately begin to shed its excess charge, and its spin rate must increase accordingly.

"When the process is completed, assuming that the environment itself has not been significantly altered by the passing event, we may expect to find that the length of the day is just about what it was before."³

In our own scenario it cannot be said that "the environment itself" was not "significantly altered by the passing event," since the "event" in our case, which added more planets to the Sun's domain of influence, can hardly be called a "passing" one. Needless to say, in the case of proto-Saturn's flare-up, the length of the day would not have been affected since the succession of night and day had not yet established itself. A change in the "length of the day," had there already been such a phenomenon, would have been achieved through a change in rotation, which is what we are mainly concerned with in the present chapter.

Although still somewhat controversial, there are other lines of evidence which leads to a compatible conclusion. Earth's equatorial bulge is the result of the centrifugal force of its rotation. It has, however, been pointed out that the equatorial bulge is greater than Earth's present rotational speed requires. It has therefore been suggested that the extra dimensions of the

¹ (1983).pp. 26-28; F. Carter, *et al.*, "A Comparative Spectral Analysis of the Earth's Rotation and Solar Activity," in *ibid.*, Vol. 114 (1982), pp. 388-393; G. P. Pil'nik, "Multiple Waves in the Earth's Diurnal Rotation," *Soviet Astronomy*, Vol. 28, No. 1 (1984), pp. 112-114; J. S. Trefil, *Space Time Infinity* (N. Y., 1985), p. 159.

² L. Ellenberger, "Saxl's Pendulum: Convection of Electric Charge Revisited," *AEON* II:2 (February 1990), p. 63.

³ R. E. Juergens, *op. cit.*, p. 13.

³ *Ibid.*, pp. 13-14.

bulge constitute a residue from a former time when Earth spun faster.¹ This hypothesis had in fact been proposed earlier by George Darwin, son of the more famous Charles.²

Furthermore, Alan Binder and Donald McCarthy pointed to the extensive array of lineaments running longitudinally across the face of our globe. These linear geological features, the nature of which is outside the scope of the present chapter, led them to see in them the scars left behind by sudden changes in Earth's rotation.³

Changes in Earth's past rotational speed has meanwhile been blamed on tidal action. These tides are supposed to be generated by the Sun and Moon,⁴ a hypothesis which actually goes back to Lord Kelvin. But as W. Munk and G. J. F. MacDonald pointed out, "there are few problems in geophysics in which less progress has been made."⁵ Alfvén and Arrhenius were of the opinion that much of Earth's primeval spin has been transferred to the Moon.⁶ This might have been true, but, in our scenario, at a later time when Earth joined in wedlock with our lunar neighbor.

If, now, under current conditions, Earth's rotation can be slowed down by a standard solar flare, the charge dispatched by the Sun toward proto-Saturn should have slowed it even more—much more than the 10-millisecond-amount detected by Plagemann and Gribbin in 1972. We remind the reader of Friedman's words that "such a storm amounts to no more than a tiny ripple in the usual steady flow of solar energy." Needless to say, that primeval solar discharge which resulted in proto-Saturn's flare-up was much more tremendous—in fact, colossal.

Leroy Ellenberger has meanwhile saw fit to remind us that in order "to cut Earth's rotation in half requires 100 million times more charge than Earth can possibly hold."⁷ However, he also tells us that the Danjon effect we have just discussed itself requires 10,000 times more electric charge than the Earth is physically capable of holding.⁸ But, for one thing, it is not here posited that Earth's rotational speed was cut in half; it was probably much less. And, for another, neither is it posited that Earth *held* this charge, anymore than it held the 10,000-times overload of the Danjon effect which, after all, *did* transpire.

In the past, it had also been pointed out—even by astronomers who should have known better—that if Earth were to stop or slow considerably down, all unattached objects on its surface would fly off. These would-be critics included such well-known authorities as Isaac Asimov and Edwin Krupp.⁹ But, on the contrary, as Shulamit Kogan pointed out, "were the Earth to stop rotating—within a little over an hour—not even stalactites would break, let

¹ *New Scientist* (November 23, 1996), p. 55.

² F. Jueneman, "Pterodactyls in the Mesozoic: A Flap in Time," *AEON* V:2 (April 1998), p. 29.

³ A. B. Binder & D. W. McCarthy, "Mars: The Lineament Systems," *Science* 176 (1972), p. 279.

⁴ H. Alfvén & G. Arhennius, *Evolution of the Solar System* (Washington, D. C., 1976), p. 154.

⁵ W. Munk & G. J. F. MacDonald, "*The Rotation of the Earth: A Geophysical Discussion*" (Cambridge, 1960), p. 15.

⁶ H. Alfvén & G. Arhennius, *op. cit.*, p. 163.

⁷ L. Ellenberger, "Of Lessons, Legacies, and Litmus Tests: A Velikovsky Potpourri," Part One, *AEON* III:1 (November 1992), p. 94.

⁸ *Ibid.*; *idem*, "Saxl's Pendulum: Convection of Electric Charge Revisited," *AEON* II:2 (February 1990), p. 63.

⁹ S. Kogan, "Sagan vs. Sagan," *KRONOS* VI:3 (Spring 1981), p. 37.

alone things fly off the Earth.”¹ And yet, this error continued to surface among those who wished to vilify Velikovsky. The main problem here is that these critics, as Dick Atkinson pointed out, seem to have held “the silly idea that rotation somehow holds us down” when “actually it throws us off.”² They seem to have forgotten the role that gravity plays in holding objects to the ground.

“You are being held down on to the Earth’s surface by a force we call gravity [Peter Warlow found it necessary to explain]. The rotation of the Earth produces a minute force—about one three-hundredth of the gravitational force at most—which is seeking to throw you off. It is, of course, far too small to succeed against the pull of gravity. If the Earth stopped rotating—however suddenly—that outward force would cease, and you would be held very slightly *more* firmly to the surface.”³

Of course, as Warlow additionally points out, objects on the surface of the rotating Earth also have momentum. At the equator, objects are being carried around at something like 1,000 miles per hour. Thus, were Earth to stop rotating, all unattached objects, while not flying off, would still skid across the surface. Damage to physical objects would be bound to ensue. People, too, would naturally suffer harm, but friction and collision with other items would soon bring everything to rest.⁴

What must also be stressed, however, is that we are not here advocating a rotational stasis. Earth did not stop rotating due to proto-Saturn’s flare-up. It only slowed down—and probably by much less than half its former speed. Harm and damage would have been much less. The oceans, however, would have inundated western shores, while retreating from eastern ones, with a general flow toward both poles.⁵

Earth would then have *tended* to resume its former speed. We are not at present in a position to say what Earth’s rotational speed, as well as proto-Saturn’s, had been prior to the flare-up; nor can we be absolutely certain that both, or either, of these two bodies would have returned to their *exact* pre-flare speed, *despite their tendency to do so*. This is because, with the additional bodies introduced into the Sun’s domain, the Solar System’s own electrical balance would also have changed. What would also have changed, at least temporarily, but still for a very long time, is Earth’s own internal heat sink.

FRictional Heat

As noted in our previous chapter, Earth’s core is believed to be liquid or, at best, semi-liquid.⁶ Others have theorized that the core is composed of two layers, and that the inner one

¹ *Ibid.*

² D. Atkinson, “Cosmic Winter Revisited,” *Chronology and Catastrophism Review* XV (1993), p. 46.

³ P. Warlow, *The Reversing Earth* (London, 1982), p. 70 (emphasis as given).

⁴ *Ibid.*

⁵ See here F. B. Jueneman, “The Terrestrial Sea: A Critical Model of Science and Myth,” *AEON* IV:6 (May 1997), pp. 32-33.

⁶ See here, for instance, V. Clube & B. Napier, *The Cosmic Serpent* (London, 1982), pp. 126-127.

is actually solid, with only its surrounding outer core being in a fluid state.¹ As also noted in our last chapter, any change in Earth's rotational speed would affect the core differently. This is because of the difference in composition between the core, or cores, and the surface. It might also be pointed out that, as disclosed by Xiaodong Song and Paul Richards, the inner core has its own rate of rotation. The solid inner core is said to spin about two-thirds of a second per day faster than the surface. But since this adds up to only one extra rotation *every 400 years*,² it need not presently bother us. It is mainly the difference in composition between the core, or cores, and the surface material that is of importance to our thesis. This is because, under these circumstances, were the Earth to slow down in its rotation, the core, or cores, would continue to spin at the old rate. What "is evident from the translatability of crustal blocks," Warren Hunt tells us, is that "there is little coherence between layers of the earth."³

"Therefore, if something stopped the surface, the core would continue. And, the heat buildup would be sudden and lead to immediate catastrophic explosions world-wide, from which few larger life forms would likely emerge intact."⁴

This heat buildup would be due to the friction created between Earth's upper surfaces and its core or cores. Hunt, however, seems to have overstated his case, somewhat exaggerating the ensuing destruction. And in any case, as already stressed, we are not positing that anything *stopped* Earth from rotating. As Alfred de Grazia noted, "if the Earth's rotation is interrupted, a fracture of the Earth's crust will reduce the energy of the braking and increase the time given to it."⁵

"There is literally all the difference in the world between an earth slowing in a day and an earth ceasing abruptly to rotate. Indeed, it is impossible for a sudden stop to occur."⁶

The frictional heat engendered between the bottom of Earth's outer crust and inner regions would have risen upward to the surface through both convection and conduction. And this, in its turn, would have resulted in spontaneous and world-wide volcanic eruptions. Are there any indications that world-wide eruptions occurred anywhere around our benchmark date of 10,000 years ago? On the basis of an article which appeared in the February 14, 1975 issue of *Science*, Jill Abery could report that:

"...a study of volcanic ash in deep sea cores indicates that there have been global episodes of volcanism, notably in the Mesozoic, Caenozoic and Quaternary...Such

¹ C. Kulyk, "Spinning Heads: Our Planet Within a Planet," *Equinox* (December 1996), p. 14.

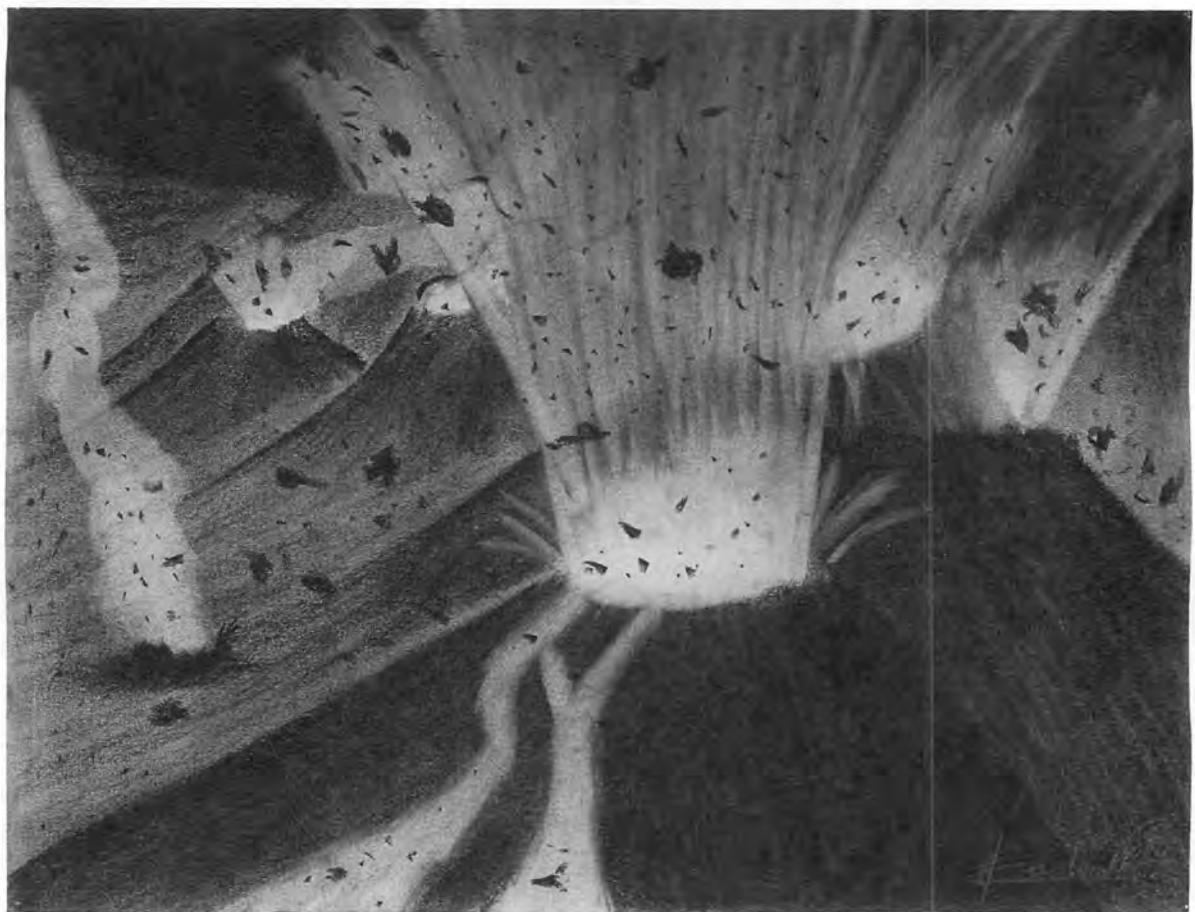
² *Ibid.* (emphasis added).

³ C. W. Hunt, "Astroblemes and Gastroblemes," *AEON* II:1 (June 1989), p. 34.

⁴ *Ibid.*

⁵ A. de Grazia, *Chaos and Creation* (Princeton, 1981), p. 8.

⁶ *Ibid.*



**World-wide volcanic eruptions would have ensued due to frictional heat generated between Earth's subsurface layers and its inner core material.
(illustration by the author.)**

greatly increased volcanism has occurred during the last 2 Myrs and appears to be strongly correlated with the major and rapid fluctuations of climate, sea-levels and ice-sheets associated with the ice-age cycles.”¹

The Quaternary period includes the Pleistocene epoch during which the last Ice Age occurred, the end of which is usually dated to have occurred somewhere around our very benchmark date. (Of the earlier spates of global volcanism we shall speak later.) In fact, intense volcanism is said to have characterized late Pleistocene (and/or late Quaternary)²

¹ J. Abery, “Volcanism and Catastrophic Mythology,” *SIS Workshop* 6:2 (August 1985), p. 9.

² J. P. Kenneth & R. C. Thunnell, “Global Increase in Quaternary Explosive Volcanism,” *Science* 187 (1975), pp. 497-503; J. R. Bray, “Pleistocene Volcanism and Glacial Initiation,” *Science* 197 (1977), pp. 251-254.

times with literally *thousands* of volcanoes active at the time.¹

"Today, approximately 500 terrestrial volcanoes are considered to be active or dormant (potentially active). The number of extinct cones, however, greatly exceeds this—and when one contemplates that many presently extinct volcanoes were active a mere thousand years ago, the rate of extinction, even if only approximately constant over the last 11,500 years, indicates that volcanic activity around that date was severe. Indeed, the volcanic record confirms this..."²

Lava beds, vast plains of warped lava flows up to depths exceeding 1,500 meters, covering areas more than 600,000 kilometers across the states of Idaho, Oregon, and Washington, are cut through by the Snake River flowing along the Idaho-Oregon border. This lava constitutes the outpouring of relatively small volcanic craters and cinder cones rising in the midst of a belt of craters which in Idaho alone, in the Craters of the Moon National Monument, are two or three miles wide and thirty miles long.³ This immense stretch, a veritable ocean of solidified lava, has been blamed on the ice itself, the tonnage of which has been surmised to have squeezed lava out of Earth's mantle "like a gigantic toothpaste tube."⁴ As we have seen in the first part of this very work, volcanic eruptions have often been blamed for the *onset* of ice ages. Here we have the opposite where ice ages are blamed for the onset of volcanic eruptions. In our opinion neither is correct since, as we shall soon see, the world-wide volcanic eruptions of 10,000 years ago transpired at the *end*, and not the beginning, of the Pleistocene Ice Age.

The association of global volcanic eruptions with the Ice Age has been known for some time. Despite his Biblical fundamentalist views, Frederick Wright is worth quoting when he writes that:

"The connection of lava-flows on the Pacific Coast with the Glacial Period is unquestionably close. For some reason which we do not understand, the vast accumulation of ice in North America is correlated with enormous eruptions of lava west of the Rockies. The extent of outflow of lava west of the Rockies is almost beyond comprehension. Literally hundreds of thousands of square miles have been covered by them to a depth—in many places—of thousands of feet."⁵

As stated by others: "Volcanicity in Iceland *during the last 10,000 years* has been three to five times more vigorous than during previous Late Cenozoic intervals."⁶ And that this took

¹ See, for instance, the table of localities supplied by D. S. Allan & J. B. Delair, *Cataclysm* (Santa Fe, 1997), p. 261.

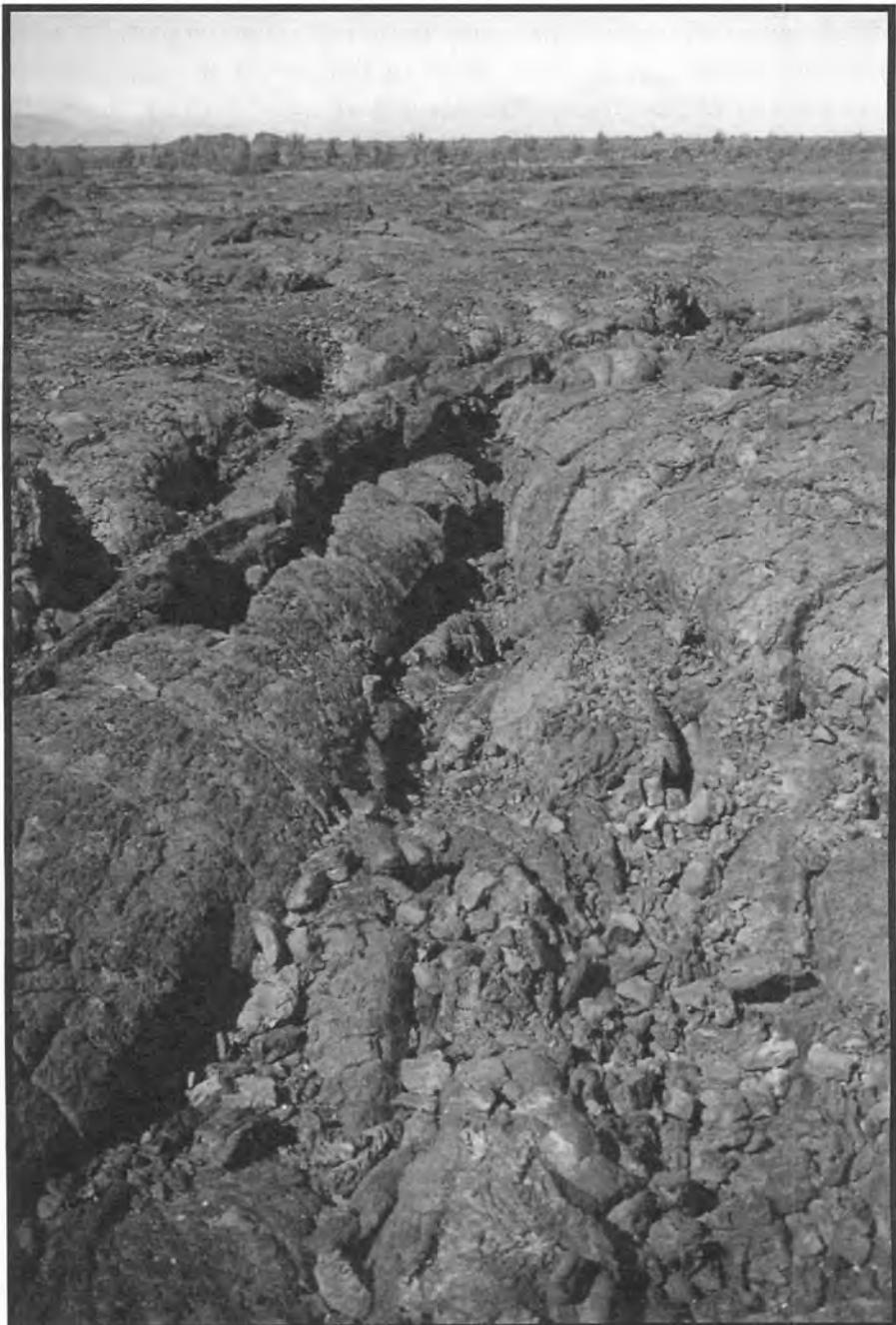
² *Ibid.*, p. 270.

³ R. W. Limbert, "Among the 'Craters of the Moon': An Account of the First Expeditions Through the Remarkable Volcanic Lava Beds of Southern Idaho," *The National Geographic Magazine* (March 1924), p. 303.

⁴ F. B. Jueneman, *Raptures of the deep* (Des Plaines, IL, 1995), p. 137.

⁵ G. F. Wright, *Man and the Glacial Period*, as quoted by A. M. Rehwinkel, *The Flood* (St. Louis, Missouri, 1951), pp. 116-117.

⁶ J. P. Kennet & R. C. Thunell, *Science* 187, pp. 497-502 (emphasis added).



The tortured lava beds of Idaho.
Craters of the Moon National Monument.
(Photograph by the author.)



Folded lava formation—Pahoehoe flow.
Craters of the Moon National Monument.
(Photograph by the author.)

place at the end of the Ice Age was demonstrated by Frank Hibben. "There is no doubt," he wrote, "that coincidental with the end of the Pleistocene, at least in Alaska, there were volcanic eruptions of tremendous proportions."¹ Moreover: "Particles of clay, volcanic dust and sea salts embedded in [retrieved] ice cores indicate that during the last glaciation, especially toward its end, the atmosphere was turbulent and dirty."²

Idaho's Craters of the Moon National Monument lies within the basin of the Snake River and features lava fields that have been dated to the Late Pleistocene epoch. Although it had to be admitted that some of the lava flows had to have formed about 2,200 before the present,³ the highest volcanic activity in this area has been calculated to have taken place some 10,000 years ago.⁴ It therefore becomes obvious that Harry Wexler's conclusion, as reported in Part One of this work, that "the geological record shows no consistent connection between periods of vol-

¹ F. C. Hibben, *The Lost Americans* (N. Y., 1946), pp.176-177 (emphasis added).

² W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 155 (emphasis added).

³ <http://www.nps.gov/crmo/geology/geology-1.htm>

⁴ *Ibid.*



Lava spout—or fumarole.
Craters of the Moon National Monument.
(Photograph by the author.)

canic activity and ice ages,"¹ cannot be correct. As also pointed out there, there *are* cases where volcanic ash deposits do not coincide with past glaciations, although in some cases they do. But we are here concerned with the *end* of the Pleistocene Ice Age which, because of its unique circumstance concerning the entry of the proto-Saturnian system into the Sun's domain of influence, has to be regarded differently.

Now it has often been stated in the literature that the gases and other debris ejected through volcanic eruptions rise into the atmosphere to form clouds that impede the Sun's rays from reaching Earth's surface and thus tend to *lower* temperatures. This might then be seen as just as valid an objection in our case since such a world-wide debris-laden atmosphere should have hampered proto-Saturn's rays from directly reaching Earth, as it should also have restrained its radiation from being reflected back from the inner surface of its plasmaspheric bubble. What should, however, be kept in mind is that this world-wide outpouring of volcanic gases and debris would itself have been hot. Additional heat would have accumulated through

¹ H. Wexler, "Volcanoes and World Climate," *Scientific American* (April 1952).



Spatter cone—one of more than a hundred.
Craters of the Moon National Monument.
(Photograph by the author.)

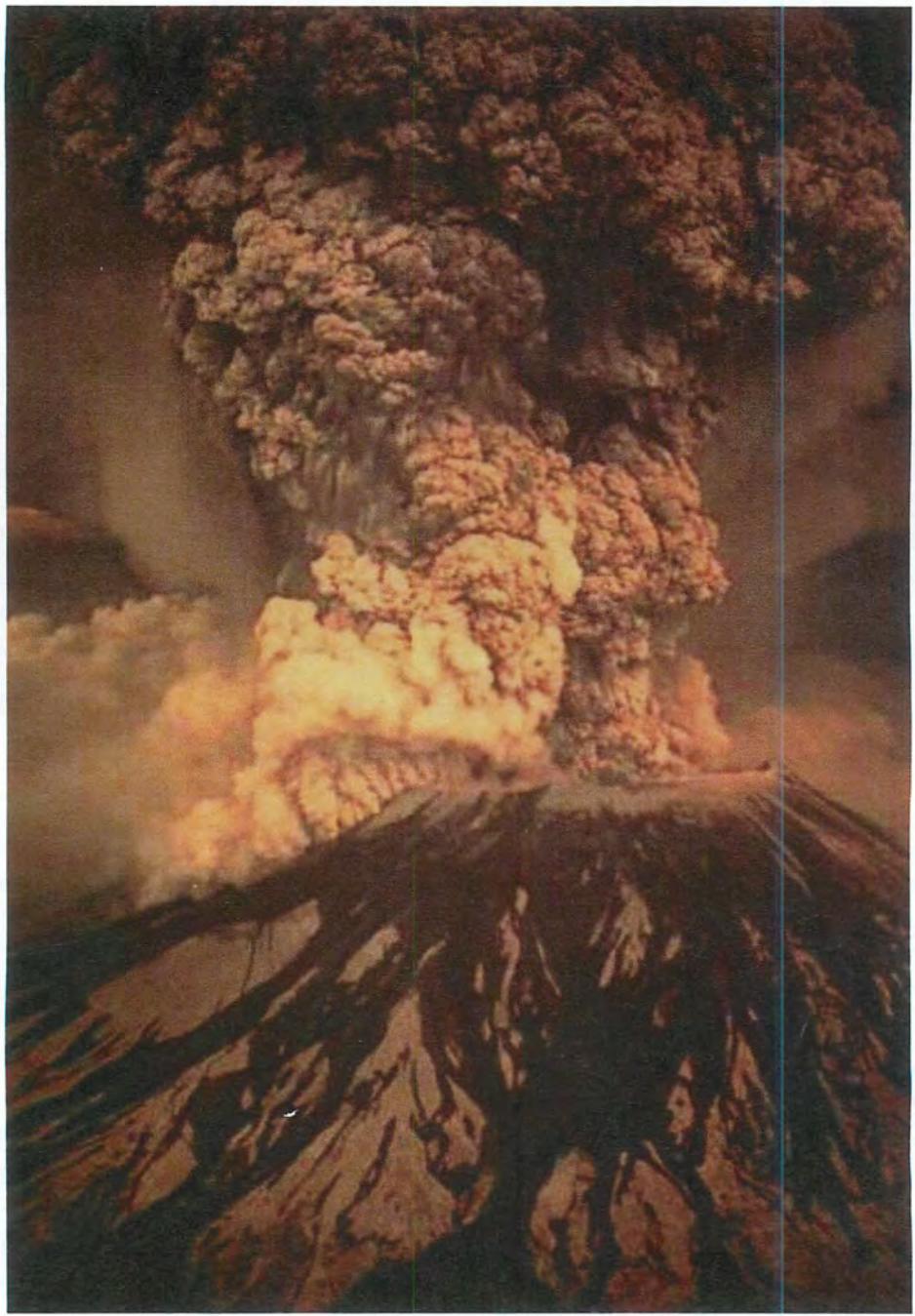
its increase of the atmosphere's carbon dioxide level. It is usually said that this augmentation of heat would be of short duration and that its eventual result would be to cool Earth's atmosphere.¹ One example of this that is usually cited is the extreme cold weather which followed the 1815 eruption of Mount Tambora in Indonesia.² But then, most of the world had already been experiencing cooler than normal weather since 1812.³ Moreover, there have been many other eruptions which failed to lower temperatures except in the immediate locality of the upheaval.⁴ Also, the cosmic winter predicted by Carl Sagan due to the billowing pollution that would encircle Earth from the burning of the Kuwait oil fields by Saddam Hussein in 1991 failed to materialize and the world continued on its (sum)merry way. All Sagan's prediction accomplished was to win a place among twenty of the greatest scientific

¹ W. Chorlton, *op. cit.*, pp. 123, 155.

² *Ibid.*, p. 124.

³ J. L. Cook, *et al.*, in G. G. Daniels (Ed.), *Volcano* (Alexandria, Virginia, 1982), p. 60.

⁴ W. Chorlton, *loc. cit.*



Explosive volcanic eruptions are capable of overburdening the atmosphere with gases and debris which tend to lower temperatures.
Shown above—the eruption of Mount St. Helens.
(Photograph courtesy of USGS/Cascades Volcano Observatory.)

blunders between 1980 and 2000.¹ It might, however, be argued that if the outbursts were global in scale, as we here posit, the atmosphere around our entire globe would have been burdened by the outpouring, thus increasing the chance of what Sagan would have termed a cosmic winter. On the other hand, it has also been pointed out that, at best, such a lowering of temperature would only have *prolonged* the Ice Age.² And, to be sure, there is nothing in our proposed sequence of events that would eliminate the possibility that the thawing of the ice would have been restricted by such a temporary cold spell which would not, in any case, have been of long duration. Balanced against this, however, we offer that such an opaque burden of the atmosphere would have trapped Earth's own rising heat, thus causing a temporary greenhouse effect.

It should also be kept in mind that not all volcanoes have the capability to discharge such billows of gas and debris into the atmosphere. Not all eruptions are explosive by nature. Many of them, as in present-day Hawaii, simply spew fountains of flaming hot lava, which also oozes out of the cracks the same eruptions tend to develop in surface material. Judging by the presently existing terrain, this is what seems to have transpired in the formation of the lava beds which cover extensive portions of Washington, Idaho, and Oregon.

While all these pros and cons should rightly be considered, it should be kept in mind that the circumstances of our own particular case would have been unique. For one thing, the elevated heat from proto-Saturn's outburst would not have taken long in melting the atmosphere's overburden. For another, Earth's entire surface underneath the volcanic pall would have been rendered hot through frictional abrasion of the underlying strata. This heat would have radiated upward and thus kept the atmosphere from cooling down. Moreover, because of its proximity to Earth, proto-Saturn's own increased heat would, temporarily at least, have been in excess of that presently received from the Sun. And this, too, would have warmed the atmosphere, in this case from above, both directly and through reflection off the proto-Saturnian plasmasphere. Earth's atmosphere would thus have been literally sandwiched between two radiating sheets both of which would have retained their concentrated activity for quite some time. With so much heat produced through the radiation, convection, and conduction of all these various sources, it is unlikely that a long-term drop in temperature would have ensued.

MELTDOWN

As we have seen in Part One of this work, glaciologists have a harder time understanding what it could have been that brought the Ice Age to a close than what caused its inception in the first place. That is because the one thing required to have melted the world's overburden of ice had to have been heat. That heat has been sought in the radiative output of the Sun. It could not, however, be consensually established what it could have been that occasioned the Sun to increase its amount of heat. And yet, to an extent, the assumption was right on the

¹ J. Newman, "Twenty of the Greatest Blunders in Science in the Last Twenty Years," *Discover* (October 2000 special twentieth anniversary issue), p. 80.

² W. Chorlton, *op. cit.*, p. 155.



Not all volcanic eruptions are explosive. Some, as in the one shown above erupting in Hawaii, spew hot fountains of lava without much debris polluting the atmosphere.

(Photograph courtesy of USGS Hawaiian Volcano Observatory.)

mark. The only problem was that our present Sun was only *indirectly* responsible for the required increase in heat. As we have now indicated, although our present Sun was to blame, some of this heat came from an entirely different sun, our hypothesized proto-Saturn. The rest came from the bowels of Earth itself.

One anomaly connected with the glacier's retreat can now be solved. Thus, had the ice retreated due to slow warming by our present Sun, the glaciers should have melted from south to north. If, on the other hand, the heat that melted them came from the combined causes discussed above, the ice should have retreated in various directions, depending on the altitude of the land. This is exactly what glaciologists themselves have concluded. The ice retreated to both north and south as well as to east and west.¹

There should also be some evidence that the end of the Pleistocene Ice Age came rather suddenly—as long as it is kept in mind that by suddenly we do not mean in a day, a week, a month, or even a year. And, as Barry Fell reported in 1985, at least one marine biologist had around that time “come to the conclusion that the melting of the Ice Age occurred much more suddenly than we had previously thought.”²

¹ C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), pp. 142-143.

² “A Conversation With Barry Fell,” *HORUS* II:1 (Winter 1986), p. 8.

"Colossal floods [he continued] were produced through the very rapid meltings of enormous chunks of ice *over a period of about a hundred years instead of the period of several thousand years that we had previously supposed*. So that's an area where a catastrophic event is being considered seriously now by a number of marine biologists."¹

Unfortunately, Dr. Fell did not disclose the name of the marine biologist in question. Four years later, however, the same conclusion was reached by Doug Harkness who told of a dramatic climate change some 13,000 years ago at the end of the last glaciation. His studies had indicated that the climate of Scotland changed from an Arctic-like cold to one that was considerably similar to what Scotland enjoys at present. And this change, apparently, took place "remarkably rapidly," within a period of 100 to 200 years.² 13,000 years ago is not that far off our benchmark figure, and since this age was arrived at through our disputed radiocarbon dating method, the slight difference in exact years when calculating so far back should not really disconcert us. Carl Sagan admonished that:

"There are many indications of past climatic changes. Some methods reach far into the past, others have only limited applicability. The reliability of the methods also differ."³

That temperatures rose at the end of the Ice Age was also indicated by C. E. P. Brooks who claimed that in the interim between 8,000 and 4,000 years ago, Earth was 5 degrees Fahrenheit *warmer than it is at present*.⁴ As Peter James and Nick Thorpe reported:

"In 1998 scientists working on ice cores from Greenland announced that just over 11,000 years ago the temperature shot up by 9 to 18 degrees Fahrenheit...*in possibly less than a single decade*. 'That amount of heating, coming so quickly, is astounding,' remarked one of the investigators, Dr. Richard Alley of Pennsylvania State University. With the change in climate the ice sheets melted and sea levels rose rapidly."⁵

Calculations by Brooks have meanwhile indicated that a rise of only one degree Centigrade in Earth's surface temperature, which is equivalent to 0.55 degrees Fahrenheit, would be enough to destabilize the entire present northern ice cap.⁶ Keeping in mind that this might be a slight exaggeration, one can then imagine what 5 degrees Fahrenheit warmer than at present would have achieved. As Ian Johnson reported through his study of Arctic regions:

"After the Pliocene/Pleistocene boundary, Arctic climatic conditions became chaotic, with repeated glaciations *and annual temperature extremes exceeding 140*

¹ *Ibid.* (emphasis added).

² As cited in the *Daily Telegraph* (September 8, 1989).

³ C. Sagan, *Broca's Brain* (N. Y., 1979), pp. 189-190.

⁴ C. E. P. Brooks, *Climate Through the Ages* (N. Y., 1949), p. 296 (emphasis added).

⁵ P. James & N. Thorpe, *Ancient Mysteries* (N. Y., 2001), p. 9.

⁶ P. Borisov, *Can Man Change the Climate?* (Moscow, 1973), p. 35.

degrees Fahrenheit. This profound transformation occurred despite the assumed constancy of basic geophysical parameters, both astronomical and terrestrial.

"According to the geological record, northern latitudes rarely had unstable climates. Pleistocene instability is thus abnormal."¹

As he continues to inform us, the Danish glaciologist Claus Hammer had reached the conclusion that the Pleistocene Ice Age ended about 10,400 years ago when the average temperature around the world rose 10 degrees Celsius *in only 20 years.*² Still shackled by uniformitarian beliefs, Hammer remained of the opinion that while the change in climate was quite rapid, the ice sheets melted slowly. This, however, was not the opinion of W. Wölfli and W. Baltensperger who well understood that the "ice age epoch is characterised by unique features, which still require an explanation."³ Unfortunately these two colleagues then attributed both the onset and the end of the Ice Age to a close passage of a planet-sized foreign object which shifted Earth off its axis.⁴ As erroneous as we believe this to be, their study of isotopic variation in the abundance of foraminifera in sea sediments, coupled with ice core readings,⁵ was enough to show that the "ice age *ended suddenly* 11,500 years ago."⁶

One thing we claim—nay, even stress—is that there was no *direct* connection between the Ice Age and Earth's present polar caps. Contrary to what most glaciologists would assert, the present polar caps do *not* constitute the tail-end of the last ice epoch. As we have indicated, the Arctic region was not even frozen during Earth's last Ice Age, as neither does it seem to have been frozen during previous ice ages. The freezing of the Arctic, which obviously came later, was the result of an entirely different, *even if related*, mechanism.⁷

Glaciologists are of course correct in assuming that a period of warmer climate followed the waning of the ice. That pockets of ice-laden terrain continued to exist in certain areas during this time is not disputed. But, overall, we here claim that the Pleistocene Ice Age came to a *sudden* end.

MEMORIES

While, as already noted, man could not have retained a memory of the onset of the Ice Age, he did not only remember its occurrence, he also kept alive the memory of its sudden demise. Although already related on an earlier page, we again mention the Creation myth of

¹ I. C. Johnson, "Anomalous Occurrence of Crocodilia in Eocene Polar Forests," *Chronology and Catastrophism Review* XIV (1992), p. 10.

² W. Immen, "Expert Believes Last Ice Age Ended 10,400 Years Ago," *Globe & Mail* (May 27, 1983).

³ W. Wölfli & W. Baltensperger, "Geographic Shift of Earth's Pole Positions After a Close Encounter With an Object of Planetary Size," in E. Spedicato & A. Agriesti (Eds.), *Fifty Years After Worlds in Collision by Velikovsky: Classical and New Scenarios on the Evolution of the Solar System* (Bergamo, 2002), p. 78.

⁴ *Ibid.*, pp. 78-80.

⁵ *Ibid.*, p. 82.

⁶ *Ibid.*, p. 78 (emphasis added).

⁷ See here D. Cardona, "The Demands of the Saturnian Configuration Theory," *AEON* VI:1 (February 2001), pp. 69-70.

the Chippewa Indians of western Ontario as related by Vine Deloria, who has studied the traditions of the Amerinds right across the North American continent.

"According to [the Chippewa] God tried to create the world four times but he failed the first three times because there was too much ice. The last time he was successful and people and animals survived. The corresponding flood story of these people concerns the rapid melting of the ice and a disastrous rise in the lakes and rivers culminating in the near-extinction of life."¹

For the record, there are two items here with which we disagree. The first is Deloria's identification of this flood as the Noachian Deluge² which, as we aim to show in a future volume, came much later.³ The second concerns his claim that this memory is unique to the Chippewa. In fact, much farther to the south, the Hopi retained the same memory, even if told in a somewhat different fashion. They, too, claim that Sótuknang, their Creator, had occasion to abort previous attempts at Creation. It was not until the third Creation that the ice splintered and "began to melt and the world began to warm to life."⁴

Remembrance of a past life sustained beneath a frigid climate, during which it is said that "the Indians were freezing" and "the Indians were cold," is also retained by the Achomawi and Shastika tribes of California. In the tales told by these people, this chilly existence was brought to an end through the introduction of heat by fire.⁵

Among the Slavey, the same event is related in a somewhat fairy-tale fashion. Thus these people remember "a long, dark winter" during which "the animals" stole "the warmth from bears which [had] been keeping it in a bag." The warmth then caused "the ice to melt, which floods the world."⁶

What is of additional interest here is that, with the one exception noted below, these few tales which tell of the melting of the ice all happen to come from the original inhabitants of North America. It is almost as if the rest of mankind has swept its mind clean of the event. What this tells us, however, is that the ancestors of the Amerinds had been living close to the glaciated areas of North America, if not actually *within* the periphery of some of those locales. Those living within the ice-free Arctic regions would have had but little contact with the glaciers and their eventual melting. Those far to the south of the frozen lands would only have experienced the flooding that followed.

The one exception referred to above that this writer has been able to unearth comes from the Scandinavians. As noted on an earlier page, the melting of the ice was remembered and handed down in these people's mythology. Out of the mist which rose from the melting of the glaciers was engendered a frost giant out of whose body Creation was said to have been

¹ V. Deloria, Jr., "Catastrophism and Planetary History," *KRONOS* III:4 (Summer 1978), p. 49.

² *Ibid.*

³ See here D. Cardona, *op. cit.*, pp. 61-64.

⁴ F. Waters, *Book of the Hopi* (N. Y., 1974), p. 20.

⁵ R. Van Over, *op. cit.*, pp. 33, 34.

⁶ S. Eddy, *op. cit.*, p. 99.

initiated.¹ The ancestors of these people, too, must therefore have abided in proximity to the ice, just as their descendants continue to do.

(In order not to mystify the reader, it is perhaps fair to disclose that this frost giant—the equivalent of the Maidu's Great Man—was an allusion to the reappearance of the proto-Saturnian configuration which, following the flare-up, had changed into a towering effulgence of terrible beauty. But, in order not to get ahead of ourselves, that, too, must be postponed to our next volume.)

¹ W. Chorlton, *op. cit.*, p. 83.

Chapter 19

Global Catastrophism

THE FLOODING OF THE LAND

That the melting of the ice sheets would have caused tremendous flooding is a given. Such floods would have taken place regardless of whichever Ice Age theory is correct.

Even those who have favored catastrophic flooding to the exclusion of ice ages might have interpreted *some* of Earth's tortured signs correctly. Boulders *could* have thus been moved from their places of origin by catastrophic floods to be deposited miles away. Rock-laden currents *could* have scoured the land over which they overflowed. What will not do is to attribute *all* such signs to raging floods.

Water from the melting ice would at first have drained down slopes to gather in streams and rivulets along meandering valleys. This water would also have been augmented by the torrential rains that would have precipitated from above. In fact, torrential rains, it has been theorized, had been falling even *during* the glacial epoch. As Robert Silverberg concluded:

“During the glacial epochs, such regions as Africa, South America, central Asia, and the southern United States experienced ‘pluvial’ periods...During these prolonged rainy spells, lakes and rivers grew, basins now dry filled with water.”¹

If such heavy rains fell during the Ice Age, even more torrential ones would have precipitated once Earth's atmosphere heated due to proto-Saturn's Sun-induced flare-up. And this, in fact, was told by Philo as having occurred right after the flare-up which he described as the air bursting into light: “And when the air burst into light, both the sea and the land became heated, and thence arose winds and clouds, and very great downpours and floods of the waters of heaven.”²

This, then, would have increased the amount of water draining through the valleys which would have swelled to violent proportions. Where rivers already existed, the amplified torrents would have burst their bounds, rising above their banks, inundating higher ground. We all know what a day's heavy rainfall, especially thunderstorms, can accomplish not only in river-bound communities, but even in lowland areas far from any rivers. Describing the amount of greater flooding that must have ensued with the melting of the glaciers 10,000 years-or-so ago will be difficult, but, inadequate as they must necessarily be, the few selections enumerated below will supply some idea.

Because the melting of the ice would have been anything but uniform, lakes were created where channels were still blocked by ice. These ice barriers, however, would not have lasted

¹R. Silverberg, *Clocks of Ages* (N. Y., 1971), p. 94.

²Eusebii Pamphili, *Evangelicae Praeparationis*, I:x:33d-e.

for long. Once they broke, an even more catastrophic flood would have engulfed the land below as the lakes would have suddenly emptied with explosive force. One of these ice-blocked lakes is known to have emptied itself in the present state of Washington.

"One of the largest floods known on Earth [Michael Carr describes] is one crossing the eastern half of the state of Washington 10,000 or 20,000 years ago. The flood is thought to have resulted from rapid emptying of a lake that covered much of western Montana. The lake was dammed by ice, and the flood followed when the ice collapsed. The released water swept over eastern Washington, eroding deep channels, scouring wide swaths of ground, and carving teardrop-shaped islands...Discharge of about one hundred times that of the Amazon River persisted for several days."¹

The glacial dam in question consisted of the Cordilleran ice sheet which extended southward and blocked the outlet that is now the Clark Fork River near present-day Sandpoint, in Idaho. To the east of this barricade stood Glacial Lake Missoula with an estimated depth of 1,950 feet covering an area of some 30,000 square miles. The inundation, known as the Spokane Flood,² which was caused by the rapture of the ice dam at Sandpoint has been estimated to have run at something like *388 million cubic feet per second*. Despite the uncertainty indicated by Carr's "10,000 or 20,000" year span, the time of the inundation has been firmly dated to the late Pleistocene.³

To be sure, Warren Hunt has contested that an ice dam could have held back the water of this lake, the depth of which was given by him as 2,100 feet. This, however, would depend on the thickness of the ice, that is how far it stretched behind the lake. Nevertheless, Hunt claims that the flood of water that scoured this stretch of land would have to have come from a tidal wave that swept over North America from the ocean. This tide, still according to him, would have inundated the Athabasca Valley up to about 5,000 feet above sea level. Hunt, of course, ascribes this tidal wave to a passing celestial body, which is not that far removed from our own hypothesis.⁴ However, if he is right in that this flood owes its origin to a tidal wave, in our scheme that tidal wave would have been spawned by the slowing down of Earth. We will leave it to future scholars to resolve the difference of opinion concerning the actual nature of this flood since, to us, it matters little since both theories agree in attributing the catastrophic flood in question to the end of the Ice Age.

Five hundred and thirty-five miles away from the scars of this major catastrophe lies the well-known Great Salt Lake, in Utah. Lying in what is known as the Great Salt Lake Basin, this lake consists of the remains of a much larger sheet of water which has been named Lake Bonneville which, at one time, covered an area of 19,000 square miles compared to the present 1,500 square mile area. Ancient shorelines indicate a previous depth of 1,000 feet,

¹ M. H. Carr, "The Red Planet," in B. Preiss (Ed.), *The Planets* (N. Y., 1985), pp. 100-101.

² T. Palmer, "Opening the Floodgates," *Chronology & Catastrophism Workshop* (1990:1), p. 30; D. Alt, *Glacial Lake Missoula and its Humongous Flood* (2002), *in toto*.

³ R. Redfern, *The Making of a Continent* (N. Y., 1986), p. 141.

⁴ W. C. Hunt, *Bulletin of Canadian Petroleum Geology*, Vol. 25 (1977), pp. 456-468.

whereas today it varies between 10 and 40 feet. A sudden breaching of the shoreline at Red Rock Canyon at the north-east end of the lake emptied it of its water in a catastrophic flood that dug a 330-foot deep canyon with a width of over a mile. The water that poured through the breach spilled out on the Snake River Plain, and savagely attacked the deep lava formations that form that plain, indicating that the melting of the ice followed the intense volcanic eruptions of the area. New spillways and channels, some of which were up to 1,000 feet wide and 330 feet deep, were cut into the lava for up to 18 miles. And this event, too, has been dated to the end of the Pleistocene.¹

Back in 1923, Harlan Bretz had gone even further in ascribing the entire scablands of Eastern Washington and the elongated basins, known as coulees, of the entire area to the same glacial floods.

"Fully 3,000 square miles of the Columbia plateau were swept by the glacial flood, and the loess and silt cover removed. More than 2,000 square miles of this area were left as bare, eroded, rock cut channel floors, now the scablands, and nearly 1,000 square miles carry gravel deposits derived from the eroded basalt."²

"Bretz's hypothesis evoked from the geological establishment a flood of commentary, nearly all of it negative," Stephen Gould reported. But, as he goes on to say: "The common theme running through all of this criticism was the rejection of his ideas in favor of gradualistic explanations, often on *a priori* grounds."³

Similarly with Lake Agassiz, in western Canada. This lake has been considered to have been the largest glacial lake in all of North America. It once covered a region much vaster than that which is presently covered by the continent's five Great Lakes. It, too, was drained when the ice damming it gave way. The flood released by the lake surged in at least three directions, north, west, and south, disrupting sea currents even in the Arctic Ocean.⁴ The shoreline of this extinct lake, as Warren Upham realized, is not horizontal,⁵ which, again, speaks for a catastrophic disturbance of the land.

Similar floods in northern Canada created those geological features known as drumlins, shallow streamlined, tear-drop shaped, islands left behind as the flood waters cut through the surrounding drift at the end of the same Ice Age.⁶ Others have attributed these drumlins to the sculpturing nature of the moving glaciers, but, as John Shaw demonstrated, the stratified nature of these formations, to say nothing of the lack of other ice-related forms in their

¹ R. Redfern, *op. cit.*, pp. 128-129; T. Nilsson, *The Pleistocene: Geology and Life in the Quaternary Ice Age* (Stuttgart, 1983), pp. 398-400.

² J. H. Betz as quoted by S. J. Gould, "Toward the Vindication of Punctuational Change," in W. A. Berggren & J. A. Van Couvering (Eds.), *Catastrophes and Earth History: The New Uniformitarianism* (N. Y., 1981), pp. 17-18.

³ *Ibid.*

⁴ *New Scientist* (November 16, 1996), p. 14.

⁵ W. Upham, *The Glacial Lake Agassiz* (1895), p. 240.

⁶ *Scientific American* (December 1989), pp. 15-16.

general area, speaks highly in favor of their formation through the action of catastrophic floods.¹ Since then, Shaw's conclusion has been championed by others such as Scott Fields² and Warren Hunt.³

A water inrush said to have flowed from the Mediterranean through the Sea of Marmara into the Black Sea dated to 5600 B.C. has recently been blamed for the singular event that gave birth to the legend of Noah's flood.⁴ Exploration and studies of the area conducted by Robert Ballard⁵ have, however, indicated that the flood occurred some 12,000 years ago when "world oceans rose as glaciers melted" at the waning of the Ice Age.⁶ Marine geologists have even more recently questioned the direction of this flow and that, 10,000 years ago, the flood had surged the other way, from the Black Sea into the Mediterranean.⁷

The truth of the matter seems to be that there were probably two different floods separated by some 5000 years. The first would have resulted at the end of the Ice Age, 12,000 to 10,000 years ago, with the water moving from what had been the fresh water lake now known as the Black Sea⁸ into the Mediterranean. The second one was in reverse with the salt water from the Mediterranean flooding into the Black Sea via the Sea of Marmara. The connection between this later surge of flood water and the Deluge associated with Noah will be discussed in greater detail in a future volume of this series.

We could include much more evidence from other parts of the globe but, on this particular issue—the floods that followed the melting of the ice—we expect but little objection from mainstream science.

That this flooding was concomitant with the end of tribal culture is evident in various localities, such as the stratum of sand and clay that covers Paleolithic remains in India's Thar Desert.⁹ Similar evidence from the same continent came to light in the Potwar plateau, where Neanderthal remains are covered by loess deposits.¹⁰ In both these cases, the burying detritus has been seen by some as the result of sudden flooding.

As we have already pointed out in an earlier chapter of this work, numerous caves scattered across Brazil contain similar deposits in which the remains of men have been found mixed with the bones of beasts. And not only do the beasts in question hail from the Pleistocene, the human remains are distinctly of Neanderthal type.¹¹ What else still lies buried will have to be left for the future.

¹ J. Shaw, "Drumlins, Sub-Glacial Melt Water Floods and Ocean Responses," *Geology* 17 (September 1989), pp. 853-856.

² S. Fields, "Megafloods at Ice Age's End," *Earth: The Science of Our Planet* (May 1994), pp. 12-13.

³ C. W. Hunt, *Environment of Violence* (Calgary, 1990), pp. 117-119.

⁴ W. Ryan & W. Pitman, *Noah's Flood: The New Scientific Discoveries About the Event that Changed History* (N. Y., 1999), *in toto*;

⁵ R. D. Ballard, "Deep Black Sea," *National Geographic* (May 2001), pp. 52 ff.

⁶ *Ibid.*, p. 57.

⁷ *New Scientist* (May 4, 2002), p. 13.

⁸ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 30.

⁹ B. & R. Allchin, *The Rise of Civilization in India and Pakistan* (Cambridge, 1982), p. 19.

¹⁰ *Ibid.*, p. 18.

¹¹ D. S. Allan & J. B. Delair, *Cataclysm!* (Santa Fe, 1997), p. 116.

AQUATIC GENESIS

That ancient man retained a memory of this flooding we have already seen. And because Earth, but more especially the sky itself, was seen to have changed—and most dramatically at that—some of the survivors remembered this aquatic calamity as having ushered in a new cosmos.

The Brahmins of India continue to stress that Creation is a recurring event, separated by vast stretches of time. They thus speak of a cycle which consists of many *kalpas* each of which is divided into one thousand *mahayugas* (great ages). Each *mahayuga* is in turn divided into four *yugas* (ages) which are named Krita, Treta, Dwapara, and Kali. They thus speak of the Kritayuga, the Tretayuga, and so forth.

Each Creation, according to Brahmanic belief, is preceded by terrible calamities. One such is believed to be an incessant rain that falls from stormy skies and lasts for months on end. It is then believed that Brahma, the supreme Creator we have already identified as an avatar of the Saturnian deity, is believed to go to sleep until the time comes for his reawakening, at which time Creation is once more resumed. The belief in this endless recurrence of Creation was instigated through the memory of successive destructions which mankind experienced through the ages. One point of utter importance to the subject at hand is that, according to this Brahmanic religio-philosophy, the waters of a cataclysmic flood covers the “universe,” from which the new Creation then proceeds.¹

The varied tribes of central India, holding themselves aloof from the Brahmanic system of their neighbors, hold similar beliefs. Thus, among the Bison-Horn Marias, the Gonds, and the Saora of Orissa, it is told that one world had already been created when it was destroyed by floods.²

Because man believed in more than one Creation, and therefore in more than one destruction, it becomes rather difficult at times to separate one event from a later one. This has even led some scholars to assume that Creation actually *followed* the Noachian Deluge which, in fact, transpired much later in time. William Mullen, for instance, was of the belief that the ancient Egyptians confused one with the other.³ To an extent, this *might* have been so since there is little doubt that, in time, the ancients themselves would have confused one flood with another. Unfortunately, Mullen himself is also guilty of confusing the terrestrial flood with the celestial ocean, but let that be. So, likewise, with Malcolm Lowery when he states that “the Bible begins with a record of the Creation, in which the world is stabilised.” He then asks: “But *which* creation?” And he answers by: “It had long been a belief of the ancients, after all, that the world must be destroyed at intervals to be created anew, and it is thus quite possible that the story symbolized in Genesis I refers, for instance, to the time immediately *after the [Noachian] Flood.*”⁴

¹ C. F. Volney, *New Researches on Ancient History* (1856), p. 157; H. C. Warren, *Buddhism in Translation* (1896), pp. 320 ff.

² O. Herrenschmidt, “Tribal Mythologies of Central India,” in “India: The Eternal Cycle,” *Larousse World Mythology* (London, 1972), pp. 264-265.

³ W. Mullen, “A Reading of the Pyramid Texts,” *Pensée* IVR III (Winter 1973), p. 14.

⁴ M. Lowery, “Father Kugler’s Falling Star,” *KRONOS* II:4 (Summer 1977), p. 7 (emphasis as given).

This confusion between flood and Creation goes back to Staniland Wake and might have even originated with him. Wake saw the preservation of the animals in Noah's ark as symbolizing "the seeds of all things preserved that they might again cover the earth." As he goes on: "Taken in this sense, we see the reason of the curious analogy which exists in various points between the Hebrew legends of the creation and of the deluge."¹ Hans Schindler Bellamy followed suit. In his attempted documentation of Hans Hoerbiger's defunct Cosmic Ice Theory, Bellamy also assumed that Creation arose out of the watery chaos left behind by Noah's Deluge:

"In all deluge myths, whether of the eastern or the western hemisphere, whether told by peoples living near the poles or by tribes settling in the tropics, one fact always stands out: the Great Flood appears as the conclusion of a universal catastrophe, as the finale of a great cosmic drama. But, though it definitely closes a period, it does not cause the final *end* of things. After the destruction comes a new creation."²

So, also, Velikovsky who, in a throwaway sentence in one of his shorter papers, concluded that "the first chapter of Genesis," which tells of the Creation, is "a tale brought down from exotic *and later* sources."³ More recently David Salkeld took this up and attempted to show why, in his opinion, Velikovsky was correct.⁴ Thus he directs the reader's attention to a passage recorded in the New Testament to the effect that:

"...by the word of God [literally, Theos] the heavens were of old, and the earth *standing out of the water and in the water*. Whereby the world that then was, *being overflowed with water*, perished. But the heavens and the earth which are now, by the same word are kept in store."⁵

Although the above words were written by Simon-Peter, one of the apostles of Jesus, in his second Epistle, there is no doubt that they echoed not only the general Jewish belief of his day, but also of days long before his time. Even so, there is nothing in these verses which claim that the water in question was that of Noah's flood.

This confusion is understandable, as Alfred de Grazia pointed out, when one remembers that even following Noah's flood, Creation was renewed.⁶ Thus even Manu, the Hindu prototype of Noah, "was chosen by order of the gods to recreate all creatures after the Deluge."⁷

Fortunately, at least in a few cases, enough details have been retained by the tellers that act as clues which enable us to tell which catastrophe is being described. At others times we

¹ C. S. Wake, "Influence of the Phallic Idea in the Religions of Antiquity," in H. M Westropp & C. S. Wake, *Ancient Symbol Worship* (N. Y., 1875), p. 69.

² H. S. Bellamy, *Moons, Myths and Man* (London, 1949), p. 145 (emphasis as given).

³ I. Velikovsky, "Earth Without a Moon," *Pensée* IVR III (Winter 1973), p. 25 (emphasis added).

⁴ D. Salkeld, "Genesis and the Origin of Species," *Chronology & Catastrophism Review* (2002:1), pp. 10-13.

⁵ 2 Peter 3:5-7 (emphasis added).

⁶ A. de Grazia, *Homo Schizo II* (Princeton, N. J., 1983), p. 142.

⁷ *Ibid.*

are simply left to guess. Harold Osborne, in describing the Creation legends of South America, for instance, informs us that:

"Myths of a deluge are very widespread both among the highland peoples and the tribes of the tropical lowlands. *The deluge is commonly connected with the creation* and with an epiphany of the creator-god. It is often associated with the creation of mankind or of the present races of man. It is sometimes regarded as a divine punishment wiping out existing mankind in preparation for the emergence of a new race."¹

And:

"The origin of human beings as they are now is commonly attributed to the act of a creator-god *and often connected with the deluge*. Some mythological cycles feature a primitive age of darkness before the existence of the sun, when human beings lived in a state of anarchy without the techniques of civilized life. Sometimes myths in this category appear to embody a confused racial memory of a hunting and food-gathering stage. It is not uncommon for them to be associated with a tradition of the destruction of the primitive food-gathering race by a creator-god and the creation of new races, *usually following a deluge...*"²

So, too, among the Tainos of Haiti who also relate that Creation followed "after a flood."³

SEA LEVEL CHANGES

One other subject about which we expect no objections from mainstream science concerns the rising of sea levels due to the melting of the Ice Age glaciers. As we have seen, water from the melting glaciers would have run into low lands through gullies, gathering into lakes which expanded and burst their bounds, rushing in torrents through valleys and over flat ground, inundating lands for miles around. But, as we all know, all floods and rivers which do not flow into dead-end lakes, like the Dead Sea, eventually empty into the ocean. In recent times we have often been told that if Earth's present polar caps were to melt through increasing global warming, cities on the sea coasts of the entire world would be drowned due to rising sea levels.⁴ The melting of the Ice Age glaciers would similarly have inundated coastal stretches throughout the world.

Sea level changes have been claimed for various ages. But let us stick to the end of the last Ice Age and our bench-mark figure. The problem here is that, at the end of the Ice Age, according to Edward Weyer, "sea levels dropped in some parts of the world, while in others

¹ H. Osborne, "South American Mythology," *Mythology of the Americas* (London, 1970), p. 294 (emphasis added).

² *Ibid.* (emphasis added).

³ M. Fauconnet, "Mythology of the Two Americas," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 440 (emphasis added).

⁴ See here, for instance, D. Schneider, "The Rising Seas," *Scientific American* (Fall 1998 special publication, *The Oceans*), pp. 28 ff.

it rose.”¹ In those places where it did rise, “sea level stood about one hundred feet or so above its present position.”²

“Sea-level changes [Peter Warlow explained] are recorded all over the world in the form of raised beaches, wave-cut platforms, and old cliff lines, and also in submerged positions marked by such features as submerged fossil forests. These features are clearly attributable to either a rise or fall of the land, or to a change of the mean depth of the sea. Sometimes, the features show evidence of a slight tilt of the land, where the old coastal line does not lie exactly horizontal and parallel to the present sea-level, but the most common explanation for the changes is that they were caused by changes in the mean depth of the sea which are associated with the changes in the amount of ice at the poles in the glaciations of the ice ages.”³

And:

“Such estimates are derived from actual measurements of the heights and depths of the old coastlines, and it is *assumed* that these were due to changes in the amount of ice at the poles—uniformitarianism having no other source of the variation.”⁴

One correction we would make to the above is that the Ice Age glaciers did not really occupy Earth’s northern pole since, to the contrary, as we have seen, the Arctic region was free of ice during the last glaciation. Meanwhile, one other line of evidence disclosing the reality of past sea level changes comes from a particular species of coral that grows quite near the surface of the sea especially in Caribbean waters. Obtaining cores by drilling deep into reefs around Barbados has enabled Richard Fairbanks and his colleagues to follow the past rising of sea level since the end of the Ice Age when “the great ice sheets that had blanketed much of North America and Europe were in the midst of melting, and the ocean was receiving huge influxes of water.”⁵

John Anderson, on the other hand, has questioned Fairbanks’ data, stating that they are “not accurate enough to see the kinds of events predicted by the glacialogical models.” Thus, according to Anderson, there were “at least three episodes of *sudden* sea-level rise in the past 10,000 years,” and that evidence of this is not discernable in Fairbanks’ coral record.⁶ Anderson and his co-workers have gathered additional evidence from various localities. Sediment cores and seismic soundings from Galveston Bay in the Gulf of Mexico have revealed “how that estuary has responded to rising sea level since the last ice age.”⁷

¹ “Catastrophism Old and New,” *S.I.S. Review* V:2 (1980/81), p. 35.

² D. B. Vitaliano, *Legends of the Earth* (London, 1973), p. 28.

³ P. Warlow, *The Reversing Earth* (London, 1982), pp. 112-113.

⁴ *Ibid.*, p. 113 (emphasis as given).

⁵ D. Schneider, *op. cit.*, pp. 34-35.

⁶ *Ibid.*, p. 35 (emphasis added).

⁷ *Ibid.*

"A steady increase in sea level would have caused the underwater environments that characterize different parts of the estuary to move gradually landward. But the geologic record from Galveston Bay, Anderson points out, shows 'very dramatic' features that indicate *sudden* flooding of the ancient strand."¹

As J. Bernard Delair points out, "globally rising sea levels, oscillating water-tables, fluctuating glaciers and snow-lines, recurrent volcanic and seismic episodes" are among the most "outstanding" changes of the post-glacial Holocene epoch.² As he continues, 9,000 to 8,500 years ago, "the Isle of Man was still joined to mainland Britain," while "the present Bristol Channel remained land-filled as far West as Westward Ho."³

"Generally coeval analogous effects also separated northern Australia from the island of New Guinea, while the slightly earlier drowning of the territory now submerged between eastern New Guinea and Melanesia (Bismarck Archipelago and the Solomon Islands) and extending northwards to neighbouring Micronesia (now mostly represented by the Caroline Islands) is part of the same story. Not surprisingly, marked sea level changes accompanied these developments in French Polynesia and as far eastwards as the Society and Tuamotu Islands. The disappearance of so much continuous terrain (collectively almost as extensive as Australia) represents a land loss of continental dimensions."⁴

Delair based his claim re the separation of northern Australia from New Guinea on the authority of Van Andel and his colleagues, as well as on that of J. Smart and T. Torgerson, all of whom penned their articles between 1961 and 1985.⁵ But, in 1986, V. Semeniuk and D. J. Searle came to the conclusion that an abrupt sea level drop is in evidence for three locations along a miles-long stretch of Australia's southwestern coast during the Holocene (post glacial) epoch.⁶ The problem here, as in the case of the eastern coast of the United States, is that Australia and New Guinea could not have separated through a *drop* in sea level. Nor is it possible for sea level to have risen in northern Australia while it dropped along its southwestern coast. If anything, these data only stand to confirm the contradictory evidence supplied by someone's faulty dating which, in turn, makes the dating of these events somewhat suspect.

Meanwhile, "detailed evidence of Mediterranean sea-level changes throughout the Holocene Epoch (the last 10,000 years)" came to light in 1984.⁷ And, as Delair goes on:

¹ *Ibid.* (emphasis added).

² J. B. Delair, "Planet in Crisis: The Earth's Last 12,000 Years," *Chronology & Catastrophism Review* (1997:2), p. 6.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*, p. 10.

⁶ V. Semeniuk & D. J. Searle, "Variability of Holocene Sealevel History Along the Southwestern Coast of Australia: Evidence for the Effect of Significant Local Tectonism," *Marine Geology* 72 (1986), pp. 47-57.

⁷ R. J. Braidwood, "Archaeology," *1985 Britannica Book of the Year* (Chicago, 1985), p. 165.

"Similar changes involved the separation of Sri Lanka (Ceylon) from mainland India approx. 9,000 years ago and, perhaps a little before then, the drowning of much land now occupied by the Persian Gulf, as well as of the Atlantic coast of Canada's maritime provinces."¹

As far as the Persian Gulf itself is concerned, we note the following anomaly. According to Brian Fagan, world-wide geomorphological studies indicate that "between 13,000 and 4,000 B.C. the world's sea levels rose *rapidly* by about half an inch a year as ice sheets melted." And yet, in the same paragraph, Fagan tells us that the rising Indian Ocean "flowed into the shallow Persian Gulf basin so *rapidly* by geological standards that the water level rose at a rate of about 36 feet a year."² For one thing, how rapid, even "by geological standards," could the water have risen if it took 9000 years to reach present levels? And, for another, as Charles Ginenthal noted, how could "the world's sea levels" rise by only half an inch a year, when at the same time the Persian Gulf rose by 36 feet a year?³ Nor will it do for Fagan to rely on the fact that cuneiform tablets from Mesopotamia describe the later cities of Lagash and Ur as coastal cities⁴ in order to account for the uniformitarian slowness—even though "rapidly" to him—of the rise in water. There are many cities from a later time which were once coastal that are now found far inland, as well as others, which are now situated beneath the sea—Pisa and Ptolemaic Alexandria come respectively to mind. As if there are not enough "troubling gaps in the scientific understanding of how sea level has varied in the past,"⁵ we can add Fagan's confused musings to the obfuscating brew.

As Rhodes Fairbridge (not to be confused with Fairbanks) concluded, drowned beaches at the edge of the continental shelf provide the proof that "at the height of the last large-scale advance of the glaciers, the world-wide sea level was some 330 feet lower than it is today." But then: "As the great North American and Scandinavian glaciers melted, the sea level began to rise at a rate of about 40 inches per century."⁶

"The greatest and fastest rise yet discovered in the geological record reached its crest about 6,000 years ago. The cumulative incursion of the sea flooded low-lying coastal lands in every part of the world...The flood of the sea was joined by floodwaters brought down from the highlands by rivers."⁷

More recently, however, even Fairbridge's "40 inches per century" has been brought into question. Thus Cesare Emiliani has described "how analysis of deep-sea cores from the Gulf of Mexico showed a rapid rise about 9600 BC, *the annual rate being some tens of meters.*"⁸

¹ J. B. Delair, *loc. cit.*

² B. Fagan, *Time Detectives* (N. Y., 1995), pp. 154-155 (emphasis added).

³ C. Ginenthal, "Ocean Sediments, Circumpolar Muck, Erratics, Buried Forests, and Loess as Evidence of Global Floods, *The Velikovskian* IV:1 (1998), p. 37.

⁴ B. Fagan, *op. cit.*, p. 154.

⁵ D. Schneider, *loc. cit.*

⁶ R. Fairbridge, "The Changing Level of the Sea," *Scientific American* (May 1960), p. 72

⁷ *Ibid.*

⁸ F. Hitching, *The World Atlas of Mysteries* (London, 1979), p. 164 (emphasis added).

"It must [said Emiliani] 'have caused widespread flooding of low-lying areas many of which were inhabited by man...It was apparently a surge, which brought ice to lower latitudes and caused rapid melting'."¹

Further studies conducted on the Canadian drumlins we discussed above has strengthened the conclusion that they were formed by the catastrophic flood that resulted from the melting of the glaciers at the end of the Ice Age. This flood of waters has now been calculated to have raised global sea levels *by nearly a foot in as little as a few weeks.*²

So let us not be restricted by the various dates which have been attributed to the rising of sea levels and the various rates of actual rising which have been attributed to various localities. All that we can hold to in face of these confusing attributions is that sea levels *did* rise, as indeed they would have, once the glacial ice of the Pleistocene Ice age began to melt.

ABORIGINAL RECOLLECTIONS

At this point I must ask the reader to bear with me while we tackle a tangential topic.

By the end of the 1950s, one found it flatly stated that: "No reliable evidence of the antiquity of the human occupation of Australia has been found."³ Moreover, it was widely held that great antiquity "need not be postulated" to allow the original inhabitants to spread and occupy the entire continent.⁴ By 1999 it could still be found stated that no one knows exactly when the first humans arrived in Australia.⁵

Somewhat earlier, however, in 1991, it was already being claimed that the Australian Aborigines "have lived in central Australia for at least 20,000 years, although few details of their history are known."⁶ By 1993, this figure was doubled. As Tony Allan tells us "the oldest known remains were of campsites that radio-carbon dating showed to have been inhabited 35,000 to 40,000 years ago."⁷ But, as Allan continues to inform us, "in recent years the date has been pushed steadily further back into prehistory."⁸ By 1995, the original figure had been trebled. As a famous encyclopedia tells us, "some scholars suggest that human occupation may date back 60,000 years."⁹ In an endeavor to push the date of the Aborigines' arrival in Australia as far back as possible, more than one authority has latched on to this latter date.¹⁰ An age of 60,000 years was actually assigned to a skeleton discovered at Kow Swamp in northern Victoria which, as Allan notes, is "a long way from any point of arrival

¹ *Ibid.* (ellipses as given).

² See here *Nature* (November 2, 1989), pp. 20-21; *Scientific American* (December 1989), pp. 15-16.

³ A. P. Elkin, "Australia," *Encyclopædia Britannica* (1959 edition), Vol. 2, p. 714.

⁴ *Ibid.*

⁵ T. Allan, "An Unseen World," in T. Allan (as Ed.), *Journeys Through Dreamtime* (Amsterdam, 1999), p. 9.

⁶ T. E. Hays (volume Ed.), *Encyclopedia of World Cultures*, Vol. II (Boston, 1991), p. 16.

⁷ T. Allan, *loc. cit.*; see also A. Gonen (Ed.), *The Encyclopedia of the Peoples of the World* (N. Y., 1993), p. 59.

⁸ T. Allan, *loc. cit.*

⁹ *Micropedia of The New Encyclopædia Britannica* (1995 edition), Vol. I, p. 714.

¹⁰ J. Shreeve, *The Neandertal Enigma* (N. Y., 1995), p. 255; J. Diamond, "Mr. Wallace's Line," *Discover* (August 1997), p. 83.

on the continent." Thus a landfall of over 60,000 years ago was finally established. And, despite the fact that the date of the Kow Swamp skeleton has been "much disputed," human presence in Australia has now been dated to 65,000 years ago on the basis of even newer finds in the Northern Territory.¹

Where did these people come from?

"The people who made the crossing [to Australia—Allan tells us] were almost certainly Australoids, members of a group distinguished by dark skin and a flat, retreating forehead whose surviving representatives include the Aborigines and the inhabitants of many Melanesian islands today."²

At present, one finds similar Australoids among some of the hill tribes of southern India, the Veddas of Sri Lanka (formerly Ceylon), some small groups in Malaysia, as also on some islands of Melanesia. Their remote origin has proved to be somewhat controversial. Some have traced it to *Pithecanthropus* who once inhabited Java. "It has, however, been suggested on morphological grounds that the physical characters of the aborigines could have arisen in southwest Asia."³ Thus, an origin in southern China has also been claimed.⁴

How did these people get to Australia?

As Jared Diamond noted, in order to reach the Australian continent from an Asian homeland, the ancestors of the Aborigines would have had to cross "a dozen straits separating Australia from Asia." This "provides by far the earliest evidence in human history for an ability to use watercraft" which would have been "tens of thousands of years" earlier than the use of watercraft "anywhere else in the world."⁵

On the other hand, as we have already seen, at the height of the Ice Age, Australia and New Guinea were joined together as one land. Tasmania, too, has been claimed to have been joined to these two presently divided lands. This was because the Ice Age glaciers had stolen and stored a vast proportion of the world's oceanic waters, dropping sea levels and thus laying dry vast stretches of land which are now submerged beneath the waves. This previous single landmass—Tasmania, New Guinea, and Australia—has even been christened by geologists who have chosen to call it by the name of Sahul. This landmass was itself separated from what geologists have termed Sundaland, comprising the whole of south-east Asia, Sumatra, Java, and Borneo.⁶ The joining together of these lands would therefore have facilitated the migration of the Aboriginal ancestors by lessening the number of, but not entirely removing, open-water stretches between Australia and their Asian point of departure.

"The first colonists [Allan tells us] came to Sahul from the Indonesian islands to the north. They could well have traveled all the way from the Asian mainland without

¹ T. Allan, *loc. cit.*

² *Ibid.*

³ A. P. Elkin, *op. cit.*, p. 713.

⁴ See reference #69.

⁵ J. Diamonds, *loc. cit.*

⁶ J. Wolf, *The Dawn of Man* (N. Y., 1978), p. 162.

ever having to travel more than 100 kilometres over open sea; the final hop, from Timor to the Kimberley Plateau, would have been the longest: a journey of just eighty-seven kilometres.”¹

Such a journey would have still required watercraft of some sort. “No remains of early boats have survived,” Allan goes on “but the assumption is that the newcomers drifted across the straits from Indonesia on rafts made of lashed strips of bamboo or mangrove wood.”² Although the present Aborigines cannot rightly be called a seafaring people, both rafts and canoes are actually used by them. More than that, canoes are mentioned in their myths,³ attesting to their use in great antiquity.

Nor were the Australian Aborigines the only people to have sailed this far south *prior or during* the Ice Age. The natives of New Guinea also did. But here one encounters yet another conundrum since the natives of New Guinea are believed to have sailed *northward from Australia itself* around 40,000 B.C. And, by 35,000 B.C., Tasmania had been peopled, making the Tasmanians “probably the Earth’s southernmost people during the last Ice Age.”⁴

If all this, or something close to it, was really the case, the Aborigines should have retained a memory of the rising oceanic level that would have separated their new homeland from the lands further north. In fact, they *do* remember “the great floods that followed the end of the last Ice Age.”⁵ One of their myths tells how a gigantic frog once swallowed all the water in the world, which could reflect a retention of the time sea levels dropped. Then the frog, being made to laugh by the other animals, disgorged the water which “gushed out in a terrible flood and many were drowned.”⁶ But legends, as opposed to myths, are even more telling.⁷ Thus, all along the southern shores of the continent, the Aborigines relate tales of the distant past when the sea level was lower and the coast extended further south. Tales are also told concerning the Port Philip Bay area by the Aborigines of the Mornington Peninsula. It is claimed that this area had previously been a flat and fertile hunting ground before a violent storm threw the sea upon the land where it has stayed ever since.⁸

“As it happens [Michael Kerrigan presents the case], archaeological evidence seems to support the theory that these northern areas were indeed subject to fearful floods in the temperate aftermath of the last Ice Age. The dramatic rise in sea levels that resulted when the ice caps finally thawed brought about large-scale inundations in coastal areas worldwide. The societies of northern Australia seem to have been particularly badly affected—the effects can be discerned in everything from settlement patterns to rock art. The myth of a cataclysmic worldwide flood is

¹ T. Allan, *loc. cit.*

² *Ibid.*

³ D. Vitaliano, *op. cit.*, p. 166.

⁴ T. Allan, *op. cit.*, p. 10.

⁵ M. Kerrigan, “A Timeless Land,” in T. Allan (Ed.), *op. cit.*, p. 23.

⁶ D. Vitaliano, *loc. cit.*

⁷ For the difference between myths and legends see D. Cardona, *God Star* (Victoria, B. C., 2006), p. 1.

⁸ J. Isaacs, *Australian Dreaming* (1980), p. 26.

believed by scholars to have originated at about the same time as the post-glacial changes stabilized themselves to mark out the Australian shoreline at its present level.”¹

Unfortunately, Kerrigan confused legends of the rising sea with those that told of a deluge brought about by heavy rains, a deluge that bears quite a few characteristics similar to those associated with the later Noachian Flood.² But let that pass.

One might be tempted to discount the aforementioned dates re the peopling of the Australian continent since these were based on the radiocarbon dating technique which we have already indicated to be erroneous. Nor are we alone in this contention. As Gwen Schultz pointed out, the radiocarbon dating technique is believed in by many a geologist and doubted by as many others. Geologists like William Pecora and Meyer Rubin have even gone as far as admitting that all such methods presently in vogue “are wrong,” and that this “must be acknowledged” by the geologic community.³ As Charles Ginenthal ably demonstrated, despite the fact that I do not accept all of the conclusions he reached from this, radiocarbon dating of wooden remains, including charcoal, as also seeds, reeds and grasses, tend to give dates that are older, even “considerably older,” than the sites in which such objects are eventually found.⁴ But, in this particular case, even I have to ask: Could the dates in question be wrong by as much as 60,000 or more years? Besides, would this not throw the Aboriginal memory of the rising sea levels out of the arena?

One can then argue that memories of the rise in sea levels by these people might pertain to a later era. Thus, for instance, the level of Lake Victoria, in South Australia, seems to have risen since 6,000 years ago. This came to light when an Aboriginal cemetery containing something like 10,000 skeletons, was discovered beneath its water when the lake was drained to inspect a dam. The age of 6,000 years ago was estimated by Colin Pardoe, an archaeologist then working out of the South Australian Museum in Adelaide. Excavation near the cemetery also uncovered a huge cache of worked stone tools in the form of blades and scrapers, as well as huge amounts of animal bones and mussel shells. Together with the cemetery, this led Pardoe to the realization that “the site was used by a large, settled population—which is not how archeologists thought the Australian aborigines lived.”⁵ “Everybody has this view of hunter-gatherers aimlessly wandering from water hole to water hole, looking for things to eat,” Pardoe charges. “This knocks down all those stereotypes.”⁶

This discovery proves that inundations continued to take place in Australia long after the end of the Ice Age. And with various other sea level rises and drops throughout the ages, how can we be certain that what the Aborigines really remember is the rising sea level *at* the end of the Ice Age? Of certainty there is none, at least not as of this writing, but one must also

¹ M. Kerrigan, *op. cit.*, p. 28.

² *Ibid.*, pp. 28-29.

³ G. Schultz, *The Ice Age Lost* (N. Y., 1974), p. 29.

⁴ C. Ginenthal, *Pillars of the Past*, constituting Vol. VI, Nos. 1, 2, & 3 of *The Velikovskian* (N. Y., 2003), pp. 118-155; see also P. James, *et al.*, *Centuries of Darkness* (New Brunswick, 1993), p. 386.

⁵ S. Menon, “10,000 Australians,” *Discover* (January 1995), p. 52.

⁶ *Ibid.*

keep in mind that these people can still name and locate mountains which are believed to have been under the sea for the last 8,000 years.¹

RAISED SHORELINES

Some geologists were not happy with the idea that sea levels had dropped and risen due to the onset and termination of ice ages. Among such unhappy geologists were Lawrence Cathles of Cornell and Anthony Hallam at the University of Birmingham in England, who, in 1991, proposed that the periodic rise and fall of the oceans may have been caused by changes *in the ocean floor itself.*

“The melting and refreezing of polar ice seems like the logical explanation for the phenomenon. But the fossil record also shows evidence of tropical creatures near the poles at times when the shapes of continents were waxing and waning, suggesting that sea levels could fluctuate even when Earth was much warmer and didn’t have ice caps.”²

As Cathles stated:

“To get a rise in sea level of 150 feet today, you’d have to melt more than half the Antarctic ice. For that kind of fluctuation you’d have to have really big glaciers coming and going, and that just didn’t happen.”³

Cathles and Hallam thus concluded that, since the ocean bottoms, very much like the continents, are composed of individual rocky plates drifting on the partly molten mantle, these plates sometimes drift apart “opening up deep rifts” into which water would descend, thus creating a drop in sea levels around the world. “Molten rock from the mantle would then slowly refill the rift, pushing sea levels back up.” Ocean levels could also fall, according to this theory, when a sea floor is “squeezed by the motion of crustal plates on either side of it.” This, it has been proposed, “would increase the density of the seafloor, causing it to sink into the mantle.” The squeezed plate would eventually snap back, according to Cathles. “But it would take many millennia.”⁴

There are various objections that can be raised against all this. For one thing, the thriving of tropical creatures near the poles is not reliant on the waxing or waning of ice ages. Even during those times when Earth was not in the grips of an ice age, as stated earlier in this work, the Sun’s rays would have been much too slanted, as they are present, in polar regions. This would not have been enough to warm those regions to the point where tropical creatures could survive. As indicated in our previous volume,⁵ the propensity of tropical flora and

¹ *New Scientist* (January 13, 1996), p. 40.

² “Oceanic Ups and Downs,” *Discover* (March 1991), pp. 8.

³ *Ibid.*, pp. 8, 10.

⁴ *Ibid.*, p. 10.

⁵ D. Cardona, *op. cit.*, pp. 361 ff.

fauna in Arctic regions is best explained through a stationary heat source in Earth's north celestial pole which, in our case, would have been the proto-Saturnian sun.

Secondly, the ice contained in the northern hemisphere alone during the Ice Age was definitely more than half the present Antarctic ice that Cathles claims would have been required to melt in order to raise sea levels by 150 feet—never mind his claim that “really big glaciers coming and going” during such ages “just didn’t happen.”

Meanwhile, that the plates comprising the ocean bottoms are continuously on the move has been known for quite some time. The major source of this motion is the upwelling of magma from the rifts in deep sea ridges which expands sea bottoms through new material spreading from both sides of the abyss. Thus the rifts in these ridges are so full of rising magma that no sea water would be able to descend into their depths. So, likewise, with the trenches at the edge of the continental plates, down which sea floors are claimed to be subducted underneath the continents.¹ No room here, either, for water to accumulate. There are, of course, innumerable transverse fracture zones running at right angles to mid ocean ridges, and these tend to move in opposite directions toward and away from the main rift, thus offsetting the longitudinal axis of the ridges. However, the opposite blocks of these transverse fracture zones are so tightly held together that the friction between them as they move very slowly past each other is known to cause shallow earthquakes at various points along their tract. We are then left with the edges of the individual plates themselves, but, again, these are also tightly held against each other. There is no evidence that they ever separate or pull apart or that they ever squeeze together and then “snap back.” Besides, as we have seen Cathles himself assert, such a procedure “would take many millennia” to run its course, whereas the evidence at hand calls for catastrophic suddenness.

That said, it is fair to point out that, while not in concert with Cathles and Hallam, other voices have been raised against the notion that sea levels have changed due to accumulation and melting of glacial ice during past ice ages. This has come about because continents appear to have risen and fallen in the distant past to a greater degree than can be explained through the lateral motion of the tectonic plates they sit upon. Never mind that mountains can rise in those areas where tectonic plates collide. Entire continents are now believed to have risen in height in the middle of such plates. In turn, this has been blamed on massive upwelling plumes of hot magma beneath the plates which are themselves due to complex convection currents within Earth's mantle. This would then explain why certain sea coasts now appear well above the present level of the oceans. But, according to this theory, some continents have also sunk due to the subduction of the plates at their coastal edges.² But, while this may be so, it does not account for sea level changes at the end of the Pleistocene since the process just described is believed to occur very slowly over millions of years.

One of the major indications of a change in sea level at the end of the last Ice Age, as also of previous ice ages, is the occurrence of sea shores, especially beaches, which now lie far above the present level of the sea. Thus, for instance, in summarizing Charles Darwin's discoveries during his voyage on *H.M.S. Beagle*, Archibald Geikie wrote:

¹ But see S. W. Carey, *Theories of the Earth and Universe* (Stanford, California, 1988), pp. 50, 101, 105, 301.

² M. Gurnis, “Sculpting the Earth from Inside Out,” *Scientific American* (March 2001), pp. 40-47.

"On the west coast of South America, lines of raised terraces containing recent shells have been traced by Darwin as proofs of a great upheaval of that part of the globe in modern geological time. The terraces are not quite horizontal but rise to the south. On the frontier of Bolivia they occur from 60 to 80 feet above the existing sea-level, but nearer the higher mass of the Chilean Andes they are found at one thousand, and near Valparaiso at 1300 feet. That some of these ancient sea margins belong to the human period was shown by Mr. Darwin's discovery of shells with bones of birds, ears of maize, plaited reeds and cotton thread, in some of the terraces opposite Callao at a height of 85 feet. Raised beaches occur in New Zealand and indicate a greater change of level in the southern than in the northern end of the country..."¹

And as William Hobbs discovered: "Upon the coast of Southern California may be found all the features of wave-cut shores now in perfect preservation, and in some cases as much as fifteen hundred feet above the level of the sea."² This is a situation that is found all over the world as the following excerpts make clear.

"In Tunisia and Algeria, there are a number of salt lakes, some of them below sea level, which show elevated shorelines of Pleistocene age. The University of California's expedition of 1947-48 found the bones of whales along with those of present-day mammals in these old lake beds."³

"Lake Champlain has around it elevated beaches containing numerous marine shells, with the bones of seals and whales."⁴

"Raised beaches, tilted up toward the centers of glaciation, can be traced on the coasts of Scandinavia and North America, and around the Great Lakes; these beaches can be dated by fossil shells or pollens or by the radiocarbon method."⁵

"...what is self-evident is that, since the formation of the chalk [in south-east England] there have been several major changes in sea level, at least some being very rapid as evidenced by the presence of both raised beaches and drowned forests. Some deposits show evidence of at least local catastrophes such as bands of carbonaceous material, clay layers crowded with fossil shells and bands of iron-stained modules crowded with plant remains. The cliffs of the Isle of Sheppey in particular seem difficult to explain through any gradual process. They are composed of clay, which means that their formation took place by means of silt falling out of very slowly-moving water. Usually such clay deposits show layering effects due to seasonal variations over many years, but the Sheppey cliffs show little sign of this,

¹ A. Geikie, *Text Book of Geology* (N. Y., 1893), p. 288.

² W. H. Hobbs, *Earth Features and their Meaning* (N. Y., 1935), p. 249.

³ A. O. Kelly & F. Dachille, *Target Earth* (Carlsbad, California, 1953), p. 168.

⁴ *Ibid.*, p. 172.

⁵ D. B. Vitaliano, *op. cit.*, p. 28.

and contain an enormous variety of fossils including plants, many orders of marine invertebrates, fish, reptiles, birds and land mammals and large pieces of wood. They are also being eroded away at a visibly rapid rate by the combined action of sea at the foot, and springs at the top, which infers that their 200-foot rise above the present sea level must have been very recent.”¹

“There are clear signs of former coastlines, of raised beaches and wave-cut platforms at various heights above the present sea-level, occurring throughout the world.”²

“Sea-level changes are recorded all over the world in the form of raised beaches, wave-cut platforms, and old cliff lines, and also in submerged positions marked by such features as submerged fossil forests.”³

“...successively higher beach lines [are also] found above sea level along Hudson Bay and the rising bottom of the north Atlantic” while “sunken beach lines [are found] along the south African coasts.”⁴

We could go on citing various other authorities but the phenomenon of raised beaches is too well known to require further evidence. The question that must now be asked is how did these beaches get raised? As already noted, that sea levels would have risen due to the melting of the glaciers is a given. But, in that case, old beaches and sea coasts should be submerged, as in fact many are. So how is it that we have submerged beaches in some areas and raised ones in others?

REBOUND

The answer to the above question is to be found in isostatic rebound. The theory of isostasy postulates that Earth’s crust is in such a state of equilibrium that any process that disturbs it has to be followed by a readjustment which seeks to re-establish it. Thus, the weight of the glacial ice acted to depress the ground on which it accumulated. But when the glaciers melted, the land rebounded and rose to compensate for the loss of the load. This, however, was further complicated by the fact that as the oceans received the water from the melting glaciers, the sea bottoms were forced to carry the additional weight with the result that, in certain areas, they were forced to sink. It is this dual isostatic rebound, with lands rising here and sea bottoms sinking there, that left old seashores, especially beaches, here below, and there above, the present level of the seas.

“Some geologists [Rhodes Fairbridge noted] have argued that the subsidence of the sea floor in one region is compensated by the rise of others. It seems more likely,

¹ J. Abery, “Kentish Catastrophes,” *SIS Workshop* 4:2 (September 1981), p. 3.

² P. Warlow, *The Reversing Earth* (London, 1982), p. 10.

³ *Ibid.*, p. 112.

⁴ F. F. Hall, “Solar System Studies,” Part 2, *AEON* I:4 (July 1988), p. 19.

however, that the net increase in the average depth of the sea is compensated by the rise of the continental platforms; the Colorado plateau of the western U. S., for example, has been pushed upward some 2,000 feet *in the present postglacial period.*¹

And:

"From other information about the earth and its structure it is clear that the transfer of such an immense burden from the continents to the sea must [have] set further changes in motion...The melting of a continental ice sheet 9,000 to 10,000 feet thick—the thickness [more than the extent of] the [A]ntarctic icecap—would [have caused] the continent to rise, as Scandinavia and certain parts of North America are rising even today. This rise [was] compensated by the sinking of parts of the ocean floor."²

Rather than taking millions of years, such readjustments can proceed at a very rapid pace.

"Some regions [Fairbridge continues to inform us] are so unstable that their rate of movement can be measured within as short a time as half a century. Generally speaking, the harbors that lie in the axes of ancient mountain ranges are rising slowly, as at Biarritz and Nice. Those that lie near regions that were heavily laden with ice during the last ice age are rising moderately fast. In many parts of Scandinavia this uplift is so rapid that docks used by fishing boats are literally rising out of the water."³

Thus the question asked by Derek Allan and Bernard Delair—"Might not the elevation of these beaches have resulted as much from an uprise of the land as from a drop in sea level?"⁴—is at best redundant. In fact, the concept of isostatic rebound had been forwarded by Thomas Jamieson as early as 1865. As he then wrote:

"In Scandinavia and North America, as well as in Scotland, we have evidence of a depression of the land following close upon the presence of the great ice-covering; and, singular to say, the height to which marine fossils have been found in all these countries is very nearly the same. It has occurred to me that the enormous weight of ice thrown upon the land may have had something to do with this depression."⁵

And, as Windsor Chorlton noted: "Anticipating the conclusions of 20th Century geophysicists, Jamieson explained the glacial depression and the postglacial uplift by

¹ R. W. Fairbridge, "The Changing Level of the Sea," *Scientific American* (May 1960), pp. 70-79 (emphasis added).

² *Ibid.*

³ *Ibid.*

⁴ D. S. Allan & J. B. Delair, *op. cit.*, p. 27.

⁵ T. Jamieson, as quoted by W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 90.

postulating that beneath the earth's rigid crust is a layer of rock, 'in a state of fusion,' that would yield under the pressure exerted by a massive ice sheet and gradually rebound as the covering melted."¹ And that, in effect, is what really seems to have transpired. Moe Mandelkehr put it in a nut shell when he wrote that:

"The Earth ended a major ice age about 10,000 years ago, with the last of the glacier melting about 6000 years ago. The sea level rise after 6000 BC is considered to be the result of isostatic rebound of the ocean floors after responding earlier to loading due to the post-glaciation melting."²

The Great Plain of the Koakjuaq in Baffin Island within the Arctic Circle was created "a mere 8,000 years ago" with the rising of the bottom of the Arctic Sea.³ As already noted, however, the process continues to this day. To quote further from Fairbridge:

"Certain regions of the sea bottom are sinking now...Thus the sea level does not depend solely upon the amount of water in the sea; it also depends upon the height of the land and the depth of the ocean basin."

And as noted by D. Schneider:

"Some regions, such as Scandinavia, are still springing back after being crushed by massive glaciers during the last ice age. Such postglacial rebound explains why sea level measured in Stockholm appears to be falling at about four millimeters a year, whereas it is rising by one and a half millimeter a year in Honolulu, a more stable spot."⁴

Furthermore, that ocean bottoms can rise in catastrophic suddenness was indicated by the 1964 earthquake which hit Anchorage in Alaska and lifted areas of the ocean floor by more than fifty feet.⁵

So much for millions of years.

Yet even so, as Fairbridge stresses, it is the additional water that drained into the oceans from the melting glacial ice that was the most telling factor in the rising level of the seas.

"The melting of glaciers is likely to occur faster than the tectonic readjustments that follow in the crust. It is clear, therefore, that the flow of such immense volumes of water into the sea has had its effects upon the sea level in the course of geologic time."⁶

¹ W. Chorlton, *loc. cit.*

² M. M. Mandelkehr, "An Integrated model for an Earthwide Event at 2300 BC," *Chronology and Catastrophism Review X* (1988), p. 16.

³ N. Hallendy, "The Last Trial," *Equinox* (September 1998), p. 22.

⁴ D. Schneider, "The Rising Seas," *Scientific American* (Fall 1998 special issue on *The Oceans*), pp. 32-33.

⁵ J. White, *Pole Shift* (N. Y., 1980), p. 370.

⁶ R. W. Fairbridge, *loc. cit.*

And:

"The present four-inch-per-century rise in the sea level, however, indicates that the melting of glaciers *by far overwhelms all other factors and trends.*"¹

To which he adds:

"The increase in sea level caused by glacial melting is from 100 to 1,000 times greater than the offsetting factor of the sinking of the ocean floor."²

TERRACED BEACHES

In 1955, Immanuel Velikovsky wrote: "Whatever was the cause of the phenomenon observed, it was not the result of a slow change; in such cases we would have intermediate shore lines between the present surf line and the twenty-foot line on the same beaches, but there are none."³

In this instance, Velikovsky was wrong on two separate counts. First, contrary to what he claimed, intermediate shore lines do exist. "On a fairly steep coastline," Fairbridge noted, "[raised beaches] appear like a flight of steps, the oldest and most poorly preserved being the highest, the youngest and clearest being the lowest."⁴ Second, contrary to what Velikovsky presumed, had the raising of the land been the result of a slow change, these intermediate shore lines, forming an entire series of raised beaches, would not exist. In this respect, Velikovsky completely misunderstood the entire process involved.

Years later, while he corrected Velikovsky's claim that intermediate shore lines do not exist, Charles Ginenthal repeated Velikovsky's argument, thus indicating that he, too, misunderstood the process by which beaches are left stranded above the present level of the sea.

"If the land rose gradually from the sea [he wrote], then a whole series of beaches would have followed one above the other. This has, indeed, been found in certain glaciated areas and is *prima facie* evidence of gradual change. However, this is not the case in...all regions...Beaches are found over the globe at high altitude without numerous, intermediate ones present. This clearly indicates that the changes were not all gradual but sudden and, therefore, catastrophic."⁵

Where both Velikovsky and Ginenthal went wrong is that had the land rose gradually, high and dry sea shores would have ended as gentle slopes. A gentle rising of the land would not have allowed for discernible intermediate beaches. There would have been no time for the waves to erode the slope into a terraced beach. Terraced beaches, appearing "like a flight of steps," are one of the best indicators of a series of sudden tectonic uplifts with interludes of

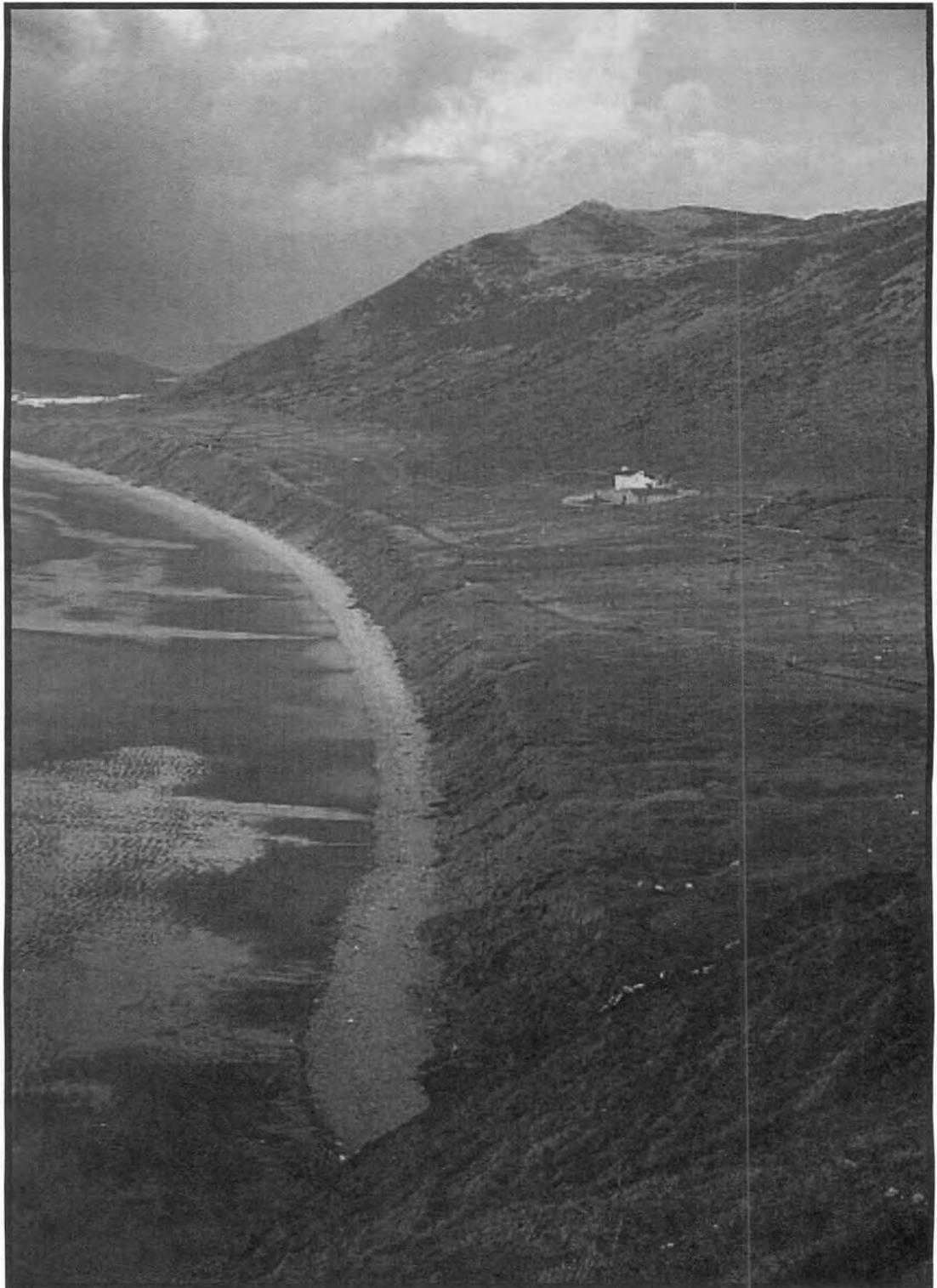
¹ *Ibid.*

² *Ibid.*

³ I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 182.

⁴ R. W. Fairbridge, *loc. cit.*

⁵ C. Ginenthal, "James Hutton: A Non-Inductive, Theological Catastrophist," *The Velikovskian* I:3 (1993), p.9.



Raised beach, now turned into farmland, Wales.
(Photograph by Stephen Codrington.)

static equilibrium in between. In order for a shore to develop into a terraced step, time must be allowed for the waves to cut into the littoral. This bespeaks gradualism. But in order for such a terraced step to rise above sea level without being eroded into a gentle slope, a sudden upsurge of the land is called for. An entire series of such terraced beaches speaks loudly for a succession of such uplifts with transitional episodes of tectonic tranquility. Thus, contrary to what Ginenthal assumed, rather than indicating *prima facie* evidence of gradual change, it is these very intermediate terraced beaches that indicate sudden catastrophic uplifts of the land.

These series of raised beaches indicate that sea shores were uplifted more than once in Earth's tortured geologic history. Some of these beaches would have been raised at the end of the last Ice Age, others at some time thereafter, with separate bouts of isostatic rebound adding intermediate steps between major uplifts.

TECTONIC UPHEAVAL

Shore lines were not the only portions of land that were upheaved at the end of the Ice Age. Mountains, too, rose higher while others were raised where none had been before. In part this came about through the slowing down of Earth's rotation. While Earth's crust is solid, it is still susceptible to inertia because, being lighter than the deeper mantle, it actually floats on its viscous surface. Thus, at least to an extent, the continental and deep sea plates continued in their westward motion as Earth slowed down. This would have created friction between crust and mantle, weakening pockets and creating hot plumes of magma which would have attempted to rise upward. The plates themselves would have jostled each other, creating even more friction. Surface strata thus tended to fold over in some regions while it swelled up in others. Back in 1931 Clarence Dutton noted that "it may be remarked that the most striking features in the facts to be explained are the long narrow tracts occupied by the belts of plicated strata, and the approximate parallelism of their folds." As he then stressed: "These call for the action of some great *horizontal* force thrusting in one direction." And: "The particular characteristic with which we are concerned is that in each of these folded belts the horizontal force has acted *wholly or almost wholly in one direction.*"¹

The jostling of the plates would also have given rise to tremendous earthquakes which would have created faults and rifted plains. *Apart from the slowing down of Earth*, this is a well understood process of diastrophism, although, to be sure, it is usually claimed to have been gradual over the years. And yet, by the late 1980s, geologists had begun to slowly turn away from uniformitarianism while advocating, if not direct catastrophism, at least episodic upheavals. Even their time scales began to change, with such "upheavals" being dated to episodic events at 200,000, 100,000, and even 30,000 years ago.² But even that was not enough. The paleontologist D. J. McLaren put it best when he stated that: "Geology was liberated as a science by Hutton and Lyell...by means of the great principle of 'uniformity'...however, there has been a natural tendency to over-compensate and to avoid catastrophic

¹ C. Dutton, "On Some of the Greater Problems of Physical Geology," *Physics of the Earth* in the *Bulletin of the National Research Council*, 78, (1931), pp. 201-202 (emphasis added).

² See here, for instance, *New Scientist* (August 20, 1987), p. 42.

*interpretations even when the evidence calls for it.*¹ During the 1983 meeting of geologists at the Dahlem Conference in Berlin, catastrophism, even *cosmic catastrophism*, was again discussed, suggested, and even admitted to have transpired—but only as long as it were kept at an arm's length by being measured in millions of years.² A year later, similar sentiments were expressed by the planetary scientist William Hartmann who could by then admit that: “During the eons of Earth’s history, its face has been radically changed by vast and violent events—volcanic explosions, implacable floods, giant meteorites gouging craters bigger than cities.”³

“Until recently [he continued], these ideas would have sounded faintly heretical. For the past 100 years, geologists have championed the principle of uniformitarianism, or ‘the present is the key to the past.’ Instead of appealing to unseen past disasters to explain geological features, they said, we should look for subtle processes at work today. River deltas are built grain by grain, mountains are torn down by the light touch of wind and water. Steeped in such a tradition, these geologists were loath even to talk of sudden catastrophes that could affect a continent or a planet.”⁴

But:

“In swinging away from catastrophist theory to evolutionist theory, the pendulum of geological thought swung in the right direction, *but it probably swung too far...* In recent years, geologists have uncovered more and more evidence of truly catastrophic events.”⁵

And:

“While the pendulum of scientific thought has swung away from the pure catastrophism of the 1700s toward a nearly pure evolutionary view in the mid 1900s, we can now see a small reversal—a correction toward a view that integrates periodic disasters with long-term evolution.”⁶

Among the catastrophes that Hartmann mentions, and which Ron Miller dramatically illustrated for him, were the colossal series of volcanic eruptions of some 600,000 years ago which created the wonders that still amaze visitors to Yellowstone National Park; the bursting of the glacial dam which emptied Lake Missoula in the massive floods that scoured the scablands; and the Theran eruption which, together with the tsunami it caused, is still believed by some to have weakened, if not destroyed, the Minoan civilization of a much later time.⁷ But

¹ As reported by V. Clube & B. Napier, *The Cosmic Serpent* (London, 1982), pp. 273-274 (emphasis added).

² *New Scientist* (June 9, 1983), p. 704.

³ W. Hartmann & R. Miller (artist), “Catastrophes that Shaped the Earth,” *Science Digest* (April 1984), p. 64.

⁴ *Ibid.*

⁵ *Ibid.*, p. 67 (emphasis added).

⁶ *Ibid.*, p. 101.

⁷ *Ibid.*, pp. 65, 66, 101.



Folded strata of the Samaria Gorge, Crete.
(Photograph by the author.)



Contorted strata in the Wu Gorge of the Yangtze River, China, now under water due to the building of the Three Gorges Dam at San Dou Ping.
(Photograph by the author.)

even then, despite the fact that he did mention that catastrophes could affect a planet, Hartmann steered clear of absolute global cataclysms. Where the present author differs is in Hartmann's statement that: "Instead of the old catastrophism based on speculation or ancient writings, the new catastrophism is based on physical evidence."¹ As we have seen and will continue to see, our own postulate is based on "ancient writings" *as well as* physical evidence. But to return to the specifics at hand: In previous pages of this work, we have already noted that the end of the Pleistocene epoch was characterized by gigantic and violent crustal convulsions. We have also already noted that, while they were already in existence as a chain of moderate hills, the Himalayas and the Tibetan Plateau are generally proclaimed to have acquired their present height at the end of the Pleistocene epoch.² This was confirmed as early as 1938 by the Geological Survey of India as reported by D. M. Wadia:

"Evidence of the extreme youth of Himalayan orogeny has multiplied of recent years. The tilting and elevation of the Pleistocene lake and river deposits of the Kashmir valley (Karewa series) containing fossil plants and vertebrates, *to a height of 5,000-6,000 ft*; the dissection of river terraces containing post-Tertiary mammalia to a depth

¹ *Ibid.*, p. 101.

² D. S. Allan & J. B. Delair, *op. cit.*, p. 37.

of over 3,000 ft and the over-thrusting of the older Himalayan rocks upon Pleistocene gravel and alluvia of the plains have been noted by the Geological Survey of India and other observers.”¹

As an early expedition to the Himalayas discovered, “this over-thrusting of older upon newer formations was attended by the dragging-up by more than 5,000 ft (1, 500 m) of marine beds containing palaeolithic remains in Kashmir, and occurred during the age of humanity.”² The Pir Panjal mountains, also in Kashmir, were likewise found to be of geologically recent date. “The last stage of the uplift, which must have been of the order of 6,000 ft, is believed to have occurred since the advent of early man,” reported M. S. Krishnan. “This upheaval has not only elevated the Pir Panjal and folded and tilted the Karewas, but has also affected the rocks of the Potwar and the Salt range.”³ But not only was the raising of these mountains coeval with “the advent of early man,” the occurrence was “immediately post-glacial.”⁴ “The scenery which this region presented at the beginning of the Pleistocene must have differed greatly from that of our time,” Helmut de Terra and T. T. Paterson declared. “The Kashmir valley was less elevated, and its southern rampart, the Pir Panjal, lacked that Alpine grandeur that enchants the traveler today.”⁵

To their amazement, these investigators found out that, while the Himalayas had already existed in a juvenile state during the Ice Age, they could only have reached their present heights after the end of the glacial age. And they, too, took special note of ancient man’s abidance at these heights—“The archaeological records prove that early paleolithic man inhabited the adjoining plains”—before the Himalayas were once again thrust mightily upwards.⁶ “The highest mountains in the World,” Heim and Gausser concluded, “are also the youngest.”⁷

So, likewise, with the European Alps.⁸ “Late Pleistocene uplift occurred in the Himalayan region and in the Alps,” R. R. Flint disclosed, “and large scale rifting took place in eastern Africa.”⁹ As Allan and Delair declare, “several authorities have recognized the geological modernity of the Scandinavian mountains, some even advocating a post-‘glacial’ (i.e. early Holocene) uplift.”¹⁰ This is evidenced by the fact that, as in the Himalayas, human arti-

¹ D. M. Wadia, “The Structure of the Himalayas and of the North India Foreland,” *Presidential address of the 25th Indian Scientific Congress* (Calcutta, 1938), p. 26 (emphasis added).

² A. Heim & A. Gausser, *The Throne of the Gods: An Account of the First Swiss Expedition to the Himalayas* (N. Y., 1939), p. 218 (emphasis added).

³ M. S. Krishnan, *Geology of India and Burma* (Madras, 1949), p. 511, as quoted by D. S. Allan & J. B. Delair, *op. cit.*, p. 27 (emphasis added).

⁴ R. Finsterwalder, “Die Formen der Nanga Parbat-Gruppe,” *Zeitschrift der Gesellschaft für Erdkunde zu Berlin* (1936), pp. 321 ff., as cited by I. Velikovsky, *op. cit.*, p. 78.

⁵ H. de Terra & T. T. Paterson, *Studies on the Ice Age in India and Associated Human Cultures* (1939), p. 223.

⁶ *Ibid.*, pp. 222-225.

⁷ A. Heim & A. Gausser, *op. cit.*, p. 220.

⁸ D. S. Allan & J. B. Delair, *op. cit.*, pp. 25, 42.

⁹ R. F. Flint, *Glacial geology and the Pleistocene Epoch* (N. Y., 1947), p. 10.

¹⁰ D. S. Allan & J. B. Delair, *op. cit.*, p. 249, citing W. C. Putnam, *Geology* (N. Y., 1964), p. 125 (emphasis added).

facts dating from the Palaeolithic have been found in caves at very high altitudes.¹ It is more than doubtful that Palaeolithic man would have abided at these elevations, some 8,028 feet above sea level. These mountains must have risen to their present height no earlier than the end of the Palaeolithic age. As Flint reported: "Mountain uplifts [including the Cordilleras and the Alps] amounting to many thousands of feet have occurred within the Pleistocene epoch itself."²

We find the same situation in China and Mongolia where colossal uplift of the land has been found to have occurred since the end of the Ice Age.³ Indeed, as noted by Allan and Delair: "Similar youthfulness characterises the ranges bordering the western Gobi desert, including all those from the Russian Altai mountains to the Tien Shan range."⁴ In fact the very basin which contains the Gobi desert itself has been proclaimed to be "relatively young," having been formed "coincidentally with the uplift of the Transbaikal ranges."⁵ This is further evidenced by the fact that the Chinese have retained a memory of an immense inland sea, known as the Great Han Hai, which once occupied the area of the present Gobi.

"At the time of [this] sea's existence, the entire [Gobi] basin apparently lay from two to three thousand feet (600 to 900 m) *lower* than it does today, and there is every indication that it was uplifted simultaneously not only with the Pamirs and great ranges of western China but also with the Tibetan plateau immediately to the south."⁶

That all these mountains commenced their career as flat land beneath the sea is evidenced by the amount of marine fossils they still contain embedded within their contorted strata. That much is accepted by all geologists. What is also accepted is that mountains are born through the sliding, collision, and jostling of tectonic plates. What is questioned here is that the process took millions of years. On the contrary, the hard evidence calls for sporadic, but abrupt, upheavals in between ages of quiescence and that some of these catastrophic events took place during the age of man at the end of the Pleistocene Ice Age.

Islands, too, must have been created during this same period. That islands can be volcanically raised in just about overnight is evidenced by the fact that such islands have been known to be born in modern times. One such island, Anak Krakatau—"Child of Krakatau"—emerged from the sea in 1930.⁷ In 1986, an underwater volcano was responsible for the creation of a new island in the Pacific Ocean near Iwo Jima.⁸ If such islands can be created by relatively minor volcanic activity, one can just imagine the number of islands that would have been explosively born through global volcanic eruptions at the end of the Ice Age.

¹ G. G. MacCurdy, *Human Origins*, Vol. I (1924), p. 77.

² R. F. Flint, *op. cit.*, pp. 9-10.

³ J. S. Lee, *The Geology of China* (London, 1939), p. 207.

⁴ D. S. Allan & J. B. Delair, *op. cit.*, p. 26.

⁵ *Ibid.*

⁶ *Ibid.* (emphasis as given).

⁷ T. Waters, "Return to Krakatau," *Discover* (October 1988), p. 67.

⁸ W. H. Bakun, "Geophysics," in "Earth Sciences," *1988 Yearbook of Science and the Future* (Chicago, 1987), p. 356.

ANCIENT TESTIMONY

That most of the authorities cited above wrote their treatises early in the twentieth century might be mistaken for naiveté due to the embryonic state of geological knowledge as it existed at the time. As we have seen, however, modern geologists are finally admitting the occurrence of punctuated catastrophism. Actually, a consensus that the face of the physical world had been entirely different in primeval times had already been reached in the eighteenth century. This, however, had been the result of a mixture that was part theology and part science. To quote Frank Manuel: "For reasons theological or scientific, or more often an admixture of both, inquirers arrived at the conclusion that the world of nature must have undergone a whole succession of violent revolutions."¹ The part that was science was unfortunately sullied by the likes of Thomas Burnet, whom Manuel referred to as "[t]hat seventeenth-century clergyman of fantasy,"² whose main aim was to "prove the Bible right." This was exemplified by Antonio Moro who "conjectured that God created the world a perfectly smooth marble sphere" and that it was not until the third day of Creation that "the primary mountain chains" were raised.³

While, at first sight, this appears to be somewhat damning from a scientific point of view, it actually conforms to a primitive belief that can be found in various parts of the world. Biblical-based theology cannot be made to account for these beliefs. Meanwhile, there is nothing in the Book of *Genesis*, or anywhere else in the Old Testament, which specifically claims that the mountains were raised on the *third* day of Creation. But we do find it so recorded in Jewish legend where it is stated that: "Up to this time [the third day of Creation] the earth was a plain, and wholly covered with water."⁴ And then "mountains appeared all over and hills."⁵ It is therefore less than doubtful that Moro was quite familiar with this tradition as well as others. Meanwhile this much can be said: Since Creation is related to have commenced with the shedding of light, understood here as proto-Saturn's flare-up, it becomes understandable that the raising of the mountains, which followed the shedding of the light, would be included in the tales of Creation.

Needless to say, Moro's claim that Earth was originally "a perfectly smooth marble sphere" is nothing but fantasy. And yet, all over the world, the belief *is* found recorded that, in primeval times, the land *was* flat. Louis Ginzberg, for instance, tells us that: "The conception that the mountains did not originally belong to the earth's form is prevalent in legend..."⁶ As it is told in another Jewish source: "The earth, which originally consisted of a level surface, became mountainous as a punishment for having received Abel's blood."⁷ Not only that, but, during the mythical generation of Enosh—not to be confused with Enoch—the raising of the mountains is correctly associated with the inundation of the sea. As it was told,

¹ F. E. Manuel, *The Eighteenth Century Confronts the Gods* (Cambridge, Massachusetts, 1959), p. 135.

² *Ibid.*

³ *Ibid.*, p. 137.

⁴ L. Ginzberg, *The Legends of the Jews*, Vol. I (Philadelphia, 1968), p. 18.

⁵ *Ibid.*

⁶ *Ibid.*, Vol. V, p. 142.

⁷ *Ibid.*

"the ocean flooded a third part of the earth; there arose mountains, valleys, and rocky ground, whereas prior to that everything had been smooth and even..."¹ And: "God caused the sea to transgress its bounds, and a portion of the earth was flooded. This was the time also when the mountains became rocks..."²

A similar series of events is ably, if concisely, described by the Chinese in the *Sing-Li-Ta-Tsiuen-Chou*. "In a general convulsion of nature," it is there related, "the sea is carried out of its bed, mountains spring out of the ground, rivers change their courses, human beings and everything are ruined, and the ancient traces effaced."³ Moreover, the connection of this tectonic violence with Creation is not unique to Jewish lore. Thus G. H. Luquet informs us that:

"In various Battak tribes of Sumatra, earthquakes are linked with cosmogony myths. Under various forms, all more or less determined, the idea is that the creation of the world was a disadvantage for a being already in existence, who reacted with a violent agitation which destroyed the earth."⁴

Similar legends were told by other primitive peoples, such as the Kayan of Borneo who passed on the belief that valleys were hollowed out by a crab. But this was no ordinary crab since the creature had been one which had fallen from the sky.⁵ Natives in the north-west of the same country also tell how the two birds responsible for Creation ended up with an Earth that was larger than the sky. In order to adjust for this miscalculation, they squished the earth, "and this caused the foldings which made mountains and valleys."⁶ As we noted earlier, the Eskimos of the Bering Strait also tell that "in the days of the first people on the earth plain, there were no mountains far or near."⁷

The mountains known as the Cuillins on the Isle of Skye, one of the Hebrides, off the north-west coast of Scotland, are volcanic in origin. Dorothy Vitaliano described them as "made of gabbro, a type of rock which crystallizes from molten matter, but far below the surface rather than on it." They are, as Vitaliano herself tells us, "the deep roots of volcanoes" which geologists claim to have been active in the Tertiary,⁸ that is the period *before* the Quaternary which includes the Pleistocene epoch. Thus, these volcanoes would have been active before the last Ice Age. And yet there is a Scottish legend which accounts for the formation of the Cuillins. As is often the case, the legend has been preserved in an allegorical form. It goes like this:

Cailleach Bhur, the Hag of the Ridges, which stood for Winter, held a lovely maiden prisoner. This maiden was so loved by Spring that she begged the Sun to free her. The Sun flung his fiery spear at Cailleach Bhur, but missed her. Instead the spear hit the ground where an

¹ *Ibid.*, p. 152.

² *Ibid.*, Vol. I, p. 123.

³ G. Schlegel, *Uranographie Chinoise* (1875), p. 740.

⁴ G. H. Luquet, "Oceanic Mythology," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 466.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ R. Van Over, *Sun Songs: Creation Myths From Around the World* (N. Y., 1980), p. 76.

⁸ D. B. Vitaliano, *op. cit.*, p. 47.

immense blister formed and swelled until it burst and discharged "a molten, glowing mass" which congealed to form the Cuillins. The hag, that is Winter, ran away and was never seen again.¹

That Cailleach Bhur could not originally have stood for normal winter is evidenced by the fact that, when she ran away, she was never seen again. As we all know and needless to say, present normal winters continue to follow in succession in Scotland, as everywhere else. The only winter man remembers as having departed never to be seen again is the long winter of the last Ice Age.

But, more important than that, the description of how the Cuillins were raised matches the manner in which volcanic mountains are raised. Concerning the Scottish legend just related, the same Vitaliano tells us that the "notion of a blister forming the earth's surface and discharging a red-hot mass could only have been imagined by some early inhabitants of Skye, for *volcanism in the Hebrides has been extinct for millions of years.*"² Yet even she could not help noting that "nevertheless it could almost be an eye-witness account of the formation of a volcanic dome."³ One of these domes, Vitaliano tells us, formed on the shores of Lake Toya on the Japanese island of Hokkaido as recently as 1943.

"On December 28, 1943, a series of sharp earthquakes began to shake the shores [of the lake], and a huge blister began to swell the ground near the volcano Usu. Within six months it had risen to 165 feet above the normal ground level, and on June 23, 1944, it burst and erupted volcanic ash. It continued to grow, and ash continued to be erupted in small explosions. Finally, in November 1944, a dome of red-hot but solid lava started to protrude through the still-rising bulge. When the dome, named Showa-Shinzan ("the-new-mountain-of-the-reign-of-Showa"), reached a height of 990 feet above the original level of the land, it stopped growing; that was in September 1945, and today [1973] Showa-Shinzan is still vigorously discharging vapor."⁴

To which Vitaliano adds: "If this happened long ago, and was described only in some local legend of the Ainu people who inhabited Hokkaido before the Japanese, surely we would think it very much exaggerated, or even fictitious."⁵ And so, also, despite Vitaliano herself, with the Scottish legend concerning the creation of the Cuillins—for, really, how could the ancestors of the Celts have described such a volcanic blister had they not seen one in action. There is, after all, nothing which *at present* resembles a blister in all of the Cuillins range.

We have also already seen how the North American Indians of Washington state recount that: "When the world was very young, the land was flat where the Cascades now rise." Then, as is often usual with these reminiscences, as a punishment for some committed offense, the Great Spirit "leaned down from heaven and [like the celestial crab of the Kayan] scooped up a

¹ *Ibid.*

² *Ibid.*, p. 48 (emphasis added).

³ *Ibid.*

⁴ *Ibid.*, pp. 48-49.

⁵ *Ibid.*, p. 49.



The Cascades of Washington state which the Amerinds of the area believe to have been
scooped up by the Great Spirit.
(Photograph by the author.)

great mass of earth, and with it fashioned the Cascades; Ocean flowed into the hole whence the material had been removed, making Puget Sound."¹ Here, once again, we see the correct association of the raising of mountains with the incursion of the sea. Also already mentioned is the legend connected with the origins of Lake Chelan in the same state. "Once," it is said, "there were no mountains or lakes in this part of the country, only a grassy prairie with abundant game." But here it was not as punishment that the Great Spirit struck the earth so that the ground shook while an immense cloud descended and hid the land. When the cloud cleared, the entire area was changed. "Where there had been a plain there was now a range of lofty mountains; deep canyons marked the places where the rocks and dirt had been removed to make the mountains."²

Further south the Klamath Indians tell of a past conflict that took place between two godlike chiefs stationed on two mountains, one on Mount Mazama in Oregon, the other on

¹ *Ibid.*, p. 53.

² *Ibid.*, p. 54.



Lake Chelan, Washington, said by the indigenes to have been created in the days of their ancestors.
(Photograph by the author.)

Mount Shasta in California. It is said that they hurled rocks and flames at each other until Mount Mazama collapsed, leaving an immense cavity which eventually filled with rain to form a lake, now the world-famous Crater Lake.¹ "The interesting thing about this legend," Vitaliano notes, "is that, stripped of the supernatural elements, it describes rather accurately how Crater Lake was formed."² What is more interesting is that simply by looking at Crater Lake, the indigenes would have had no idea how the cavity that holds the lake could have been produced. It is therefore more than probable that they actually witnessed the collapse of Mount Mazama and the later flooding of the crater. Nor is this geologically beyond such a memory since the eruption of Mount Mazama, once dated to 12,000 years ago,³ has been more recently recalculated to have occurred sometime between 6,500 and 6,550 years ago.⁴

¹ E. E. Clark, *Indian Legends of the Pacific Northwest* (Berkeley, U of C, 1953), pp. 53-55.

² D. B. Vitaliano, *op. cit.*, p. 123 (emphasis as given).

³ J. Wyckoff, *The Story of Geology* (N. Y., 1960), p. 44.

⁴ D. B. Vitaliano, *loc. cit.*; J. J. Briggs, "When Mount Mazama Lost its Top," *National Geographic* (July 1962), pp. 128, 133; J. Wyckoff, *loc. cit.*



The eruption of Mount Mazama.
(Painting by Paul Rockwood, courtesy of Crater Lake Natural History Association.)

We are of course aware that, while both the previous date and this newly determined period permit the event to have occurred during the age of man, the newer stretch falls past our own benchmark figure. In fact the newer dates come much closer to the time of the eventual dissolution of the proto-Saturnian system which we must definitely leave to a future volume. We have included it here out of chronological order merely to show that such indigenous legends are not all to be dismissed as flights of fancy.

Special note should also be taken of the fact that the legend in question actually speaks of two simultaneous eruptions, that of Mount Mazama and Mount Shasta. In itself this is not surprising since both of these volcanoes are situated on the same fracture zone. Nor is the simultaneous eruption of two volcanoes on the same fracture zone unheard of since a similar incident occurred in September 1902 when Mount Pelée, on Martinique, erupted jointly with La Soufrière, on St. Vincent, 90 miles away.¹ Shasta and Mazama are only approximately 100 miles from each other.

One can of course argue that since primitive peoples have everywhere sought to account for the origin of everything, the belief in the raising of mountainous districts from flat land is

¹ A. Heilprin, *Mont Pelée*, as quoted by C. Fort, *Lo!* in *The Complete Books of Charles Fort* (N. Y., 1974), p. 792.



Crater Lake, Oregon, the formation of which was witnessed by
the Klamath Indians.
(Photograph by the author.)

to be expected. And, yes, to a certain extent this would certainly have been so, which is why we have left many such legendary items out of this work in order not to obfuscate the subject with doubtful material. The items we have chosen to present, however, bear the stamp of verity since, as already mentioned, they are correctly allied with two associated episodes—namely, the concurrent inundation of the sea and that misunderstood event that has gone down in the mythologies of all races as *the Creation*, an occurrence that was itself connected with the shedding of a great light. In addition, we have also included a few incidents concerning the correct details of which the primitive peoples of the time would not have known had they not actually witnessed the events in question.

HIGH AND DRY WHALES

Leonardo da Vinci, that paragon of ingenuity—painter, sculptor, architect, musician, mechanician, engineer, philosopher, and inventor—made the observation that “in order to explain the presence of certain geological beds containing sea mollusks on top of modern

mountains, we would have to accept the notion of vast changes on the face of the earth."¹ Would that mollusks have been the only marine creatures that have been found on top of mountains!

We have already seen that the bones of whales have been discovered in both Tunisia and Algeria in the elevated shorelines of a number of salt lakes which have been dated to the Pleistocene, as also on the elevated beaches of Lake Champlain, which bones were there discovered together with those of seals. Other whale bones have been discovered north of Lake Ontario 440 feet above sea level,² as also in Vermont at a height exceeding 500 feet above sea level,³ and in the Montreal-Quebec area at about 600 feet above sea level.⁴ Although, as Velikovsky noted,⁵ whales do occasionally enter the St. Lawrence River, whales on the hills in the regions of Vermont and Montreal would have required either an oceanic tide of vast proportions—which, coming from the east, in our case would have been due to tidal rebound or the later regaining of Earth's previous momentum—if not to a lowering of the land. Marine creatures dating to the Pleistocene have also been found at altitudes exceeding 200 feet above sea level along the Gulf coast east of the Mississippi River.⁶

But even these elevations are nothing when compared to the whale bones that have been discovered in the Andes at an altitude of 5,000 feet.⁷ Nor will it do to explain these remains as those of whales which died and settled on the sea bottom to be covered by sediments before the sea bed rose gently to form the Andes millions of years ago. This is especially so when the same report offers the scientific conclusion that "the South American mountain chain rose very rapidly from the sea."⁸ Despite the fact that the same report claims that "geological upthrusting generally destroys fossil belts,"⁹ a "huge tidal wave," as per Ginenthal,¹⁰ would seem to be out of the question. That a tidal wave would have swept the west coast of South America due to the braking of Earth's axial spin we have already seen. But it is doubtful that this wave would have been higher than the Andes. A wave that high would have swept over half the South American continent leaving very little alive, if anything, in its wake. And yet, the fact that other marine life together with such land animals as camels and even rhinoceros were found together with the whales well illustrates the titanic force with which the wave must have hit. However, since raised beaches dating to the time of man are quite evident on these mountains as indicated by Darwin himself,¹¹ and since it is

¹ M. A. Hoffman, *Egypt Before the Pharaohs* (N. Y., 1979/1990), p. 19.

² J. D. Dana, *Manual of Geology* (1894), p. 983.

³ *Ibid.*

⁴ C. O. Dunbar, *Historical Geology* (1949), p. 453.

⁵ I. Velikovsky, *op. cit.*, p. 47.

⁶ R. F. Flint, *op. cit.*, pp. 294-295.

⁷ *The New York Times* (March 12, 1987), p. A22.

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ C. Ginenthal, *Carl Sagan & Immanuel Velikovsky* (Tempe, Arizona, 1995), p. 217.

¹¹ A. Geikie, *loc. cit.*

believed that these same mountains "rose very rapidly from the sea," it can only mean that the whales were cast upon the land by the tidal wave in question *before* the Andes were raised to their present height.

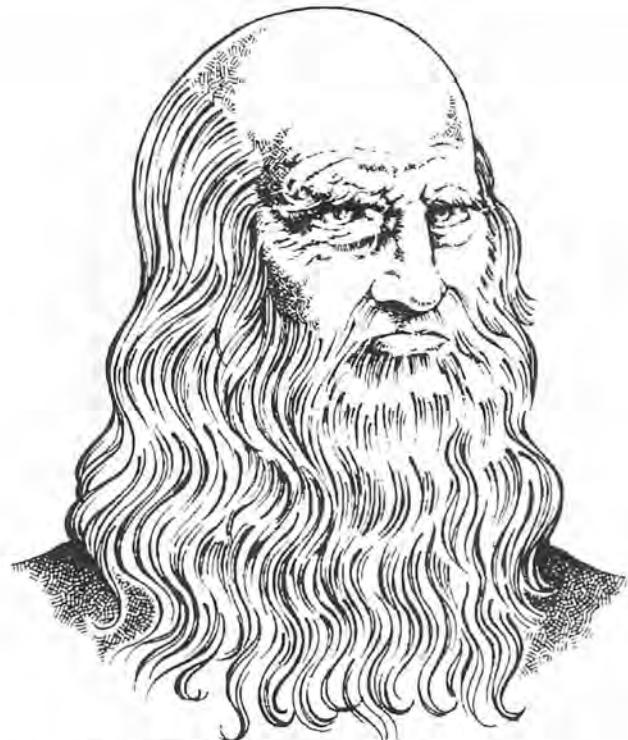
Many other whale fossils have been discovered high and dry in various parts of the world, including one that was found standing upright in the diatomaceous earth quarries in Lompoc, California.¹ Not all of these other remains, however, have been dated to the end of the Pleistocene epoch so, for the moment, we will let these pass.

MASTODONS UNDERWATER

While marine life was swept inland to be stranded on the slopes of rising mountains, land animals were elsewhere drowned beneath the rising sea.

Evidence that mastodons roamed the now submerged coasts of Florida came to light when divers discovered their bones deep inside the now submerged miles-deep cave-system of Wakulla Springs. The site of their discovery has been proclaimed too deep within the cave-system for the bones to have been "flushed" in through natural means. Either the bones had been carried inside the caves by humans or the mastodons would have had to have walked in themselves when still alive before the cave was inundated.²

Coastal regions would have naturally been some of the preferred areas to be occupied by early man. Thus it is that quite a few of these sites were swamped by the rising sea level as demonstrated by D. Prigent and his colleagues.³ Primitive tools, mainly flint hand axes, were unearthed at Hoxne in Suffolk, England, together with extinct animal remains beneath a strata

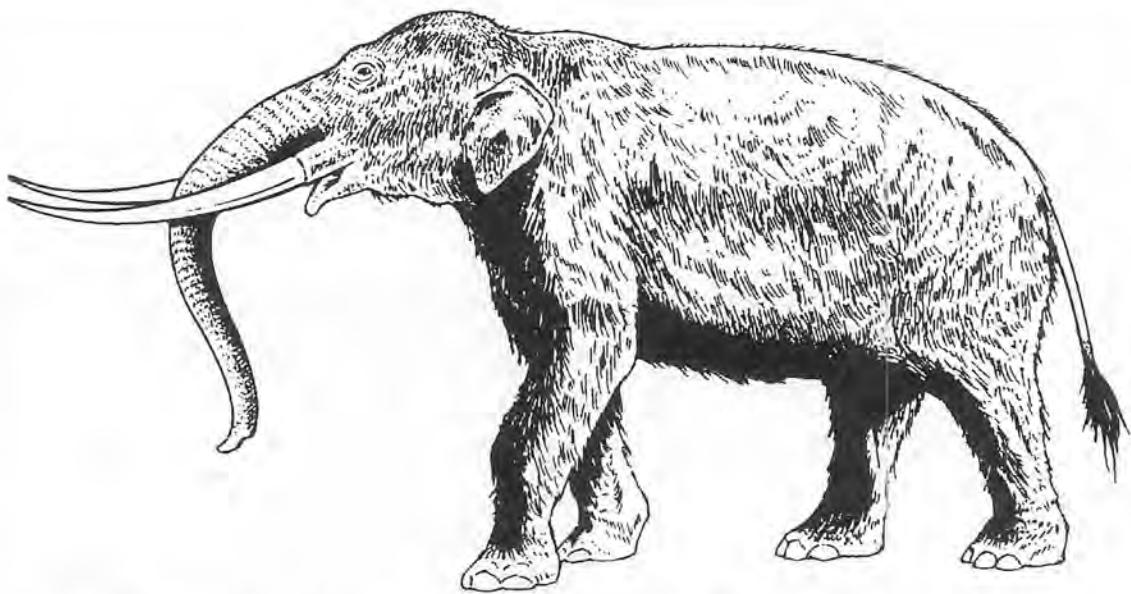


Leonardo da Vinci—(1452-1519)—who well understood that marine remains on top of mountains bespeak vast changes on the face of Earth.
(Illustration by Charles Hogarth.)

¹ K. Reese, "Workers Find Whale in Diatomaceous Earth Quarry," *Chemical and Engineering News* (October 11, 1976), p. 40.

² "Space Age Divers, Ice Age Bones," *National Geographic* (April 1989), Geographica section.

³ D. Prigent, *et al.*, "Human Occupation of the Submerged Coast of the Massif Armorican and Postglacial Sea Level Changes," in P. M. Masters & N. C. Fleming (Eds.), *Quaternary Coastlines and Marine Archaeology* (1983), pp. 314 ff.



Mastodons, like the one pictured above, were drowned in a cave in Florida due to the rising of sea levels during the age of man.

(Illustration by Bob Giuliani.)

that contained a mixture of sand, shells, and other marine “substances.”¹ As Paul Standring noted, various other sites, such as some of those once inhabited by the Clovis culture in North America, “are likely to be under water, several miles off the present coast.”² But let’s not belabor this point either since we have much bigger problems yet to solve.

GAS AND DUST

Trevor Palmer, who conducted an extensive study of cosmic catastrophism, touched upon the subject of supernovae as a possible cause of past terrestrial disasters. As he pointed out, such an exploding star would increase its brightness to more than 1,000 million times the luminosity of the Sun in a period of a few days.³

“Three such supernovae explosions, involving distant stars in our Galaxy, have been observed from Earth in the past 1,000 years. Then in 1987, a supernova explosion

¹ J. Frere, “Account of Flint Weapons Discovered at Hoxne in Suffolk,” *Archaeologia*, Vol. 13 (1800), as cited by M. A. Hoffman, *op. cit.*, pp. 48-49.

² P. Standring, “American Migrations,” in the “Pot Pourri” section of *Chronology & Catastrophism Review* (2002:2), p. 50; see also J. C. Schofield, “Postglacial Sea Levels and Isostatic Uplift,” *New Zealand Journal of Geology and Geophysics* 7 (1964); J. M. Grove, “The Glacial History of the Holocene,” *Progress in Physical Geography* 3 (1979).

³ T. Palmer, *Catastrophism, Neocatastrophism and Evolution* (Nottingham, 1992), p. 7.

was seen in the large Magellanic Cloud, a close neighbour of our Galaxy. If an explosion such as one of these had occurred within 100 light years of the Earth, it is likely that it would have caused severe damage to animal and plant life, both directly because of the radiation effects, and also as a result of associated destruction of the ozone layer.”¹

This is not Palmer’s own pet theory. And neither is it new. Michael Lemonick had already earlier reported that: “Although many scientists now lean toward the theory that dinosaurs were wiped out 65 million years ago by the impact on earth of a large comet or asteroid, some experts until recently were suggesting that radiation from a nearby supernova might have been the culprit.”² As he then goes on:

“...if one should go off within ten to 20 light-years away, says Radio Astronomer Gerrit Verschuur, ‘we would have a problem. Everything would be destroyed by blasts of X rays, ultraviolet radiation and cosmic rays.’ Radiation from an expanding supernova even as distant as 50 light-years, he says, would pack a tremendous wallop, probably destroying the atmosphere’s protective ozone layer and causing harmful mutations. Such a supernova could alter the course of biological evolution, perhaps wiping out entire species.”³

However, and despite all that, as Lemonick notes: “No evidence exists that a supernova has ever flared close enough to earth to destroy life.”⁴ But, while not exactly a supernova, proto-Saturn’s flare-up would have been close enough to produce similar effects. Thus, for one thing, the blasts from supernovae are believed to form great clouds of gas and dust.⁵ So, also, must have the blast from proto-Saturn’s explosive flare-up. And, to be sure, our stratosphere is still impregnated by interplanetary dust particles the nuclear tracks of which have been identified in collected specimens. The presence of these tracks “unambiguously confirms the extraterrestrial nature” of these particles and the high track densities have suggested “an exposure age of approximately 10^4 years within the inner solar system.”⁶ 10^4 years, as the educated reader knows, translates into 10,000 years, smack on our bench-mark figure.

DIAMONDS

Atmospheric dust would also have been supplemented by the additional fall of meteorites since there is no doubt that Earth would have been besieged by a fair amount of cosmic debris during the period under discussion. And, to be sure, terrestrial meteorites said to have originated from supernovae have been suggested by the chemist Edward Anders and the physicist Roy Lewis who, at the time, both hailed from the University of Chicago. Although

¹ *Ibid.*

² M. D. Lemonick, “Supernova!” *TIME* (March 23, 1987), p. 65.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*, p. 56.

⁶ J. P. Bradley, *Science* Vol. 226 (1984), p. 1432.

others before them had already discovered rare elements in meteorites which were identified as having originated in stellar nucleosynthesis.¹ Anders and Lewis confirmed this conclusion when they discovered an abundance of submicroscopic diamonds in a meteorite which had landed in Mexico in 1969. Now while it is accepted that the impact of a meteor creates enough pressure to crystallize carbon into diamonds, this was discarded in view of the fact that the submicroscopic diamonds in question contained atomic forms of the gas xenon which was entirely different from the kind found on Earth.²

"The diamonds, Anders suggests, came from red supergiant stars that threw off their outer coats, forming a gas shell. As the star's shell expanded outward and cooled, the carbon in it condensed and crystallized, forming diamonds. Later, when the star exploded, it created xenon that shot from the star's outer layers and caught up with the diamonds."³

These diamond-bearing meteorites would then have traveled through interstellar space until, in our year 1969, one of them was swept up by our orbiting Earth. Actually, submicroscopic-diamond-bearing meteorites had been known from before that and, in fact, Anders himself had originally been of the belief that they would have been most likely formed through shock effects.⁴ That diamonds can also grow metastably at low pressure from gaseous phases was shown in 1968 by J. C. Angus.⁵

Another diamond-bearing meteorite was discovered in Antarctica in 1977. This one, however, spurred a different theory. Mineralogists at the National Museum of Natural History were of the opinion that the diamonds were formed when two asteroids collided in deep space, thus reverting to the impact shock theory of previous years. The meteorite in this case would then have been a fragment from the original asteroidal collision.⁶

Obviously in ignorance of previous diamond-bearing meteorites, the editors of GEO misinform their readers by telling them that the "only other iron meteorite known to contain diamonds" is the massive Canyon Diablo meteorite which "blasted a one-mile-wide crater in what is now Arizona when it fell to earth about 50,000 years ago." It was, according to this report, the force of the impact which "converted the meteorite's carbon content to diamonds." However, as the same report notes, the Antarctic diamond-bearing meteorite did not form a crater when it landed and it must therefore have contained the diamonds before it landed—which is what led the above mentioned mineralogists to favor the asteroid collision theory.⁷ But one is then inclined to ask: If the Canyon Diablo meteorite created its diamond content through the shock of its impact in Arizona, should there not be some diamond traces

¹ R. S. Lewis & E. Anders, "Interstellar Matter in Meteorites," *Scientific American* (August 1983), pp. 66-77; K. F. Weaver, "Meteorites—Invaders From Space," *National Geographic* (September 1986), p. 398.

² M. D. Lemonick, *op. cit.*, pp. 63-65.

³ *Ibid.*, p. 65.

⁴ H. Alfvén & G. Arrhenius, *Evolution of the Solar System* (Washington, D.C., 1976), pp. 185-186.

⁵ *Ibid.*, p. 186.

⁶ J. Berendt, "Diamonds Fall Out of the Sky in a Meteorite," *GEO* (October 1981), p. 137.

⁷ *Ibid.*

in the crater itself? Thus, for instance, literally millions of micro-diamonds have been hypothesized to have been formed from condensing plumes of vaporized carbonaceous material when the massive meteorite that created the 24-kilometer-wide Reis crater impacted supposedly 15 million years ago.¹ Why not similarly with the Canyon Diablo meteorite?

For a while during the 1980s cosmic diamond mania seemed to grip the astronomical world. Basing his hypothesis on his own work as well as that of Francis Ree and William Nellis, Marvin Ross, then at the Lawrence Livermore National Laboratory, managed to create, even if but for a brief period, temperatures and pressures exceeding those necessary for creating diamonds, while performing shock-wave experiments on methane. From this he then predicted that the ultradense layers of methane believed to exist thousands of miles deep within the planets Uranus and Neptune would have long created diamonds in their interiors.² In the case of Neptune, they might even be raining down. As Robin Benedetti claimed, although they cannot be sure how big these Neptunian diamond crystals might form, it is "possible that diamonds are literally raining down through the atmosphere [of Neptune] toward the planet's center, releasing heat as a result of friction."³

Other researchers, jumping on the same band wagon, speculated that Uranus and Neptune would not be the only bodies in which diamonds would have been formed in abundance. The ring around Uranus itself, it has been suggested, may also be composed of diamond dust. Titan, one of the satellites of Saturn, was named as another possible candidate since it, too, is believed to contain something like five percent methane in its atmosphere.⁴

A large number of tiny diamonds were also discovered by the then Soviet scientist E. Slobotovich strewn throughout the site over which the Tunguska bolide exploded. This led Carl Sagan to the hypothesis that diamonds might also be the constituents of comets.⁵

The subject of cometary diamonds received an additional boost when Davis Brez Carlisle and Dennis Braman came across micro-specimens in the Cretaceous-Tertiary boundary clay of Alberta, Canada. As Trevor Palmer tells it, these diamonds were similar to ones found in chondritic meteorites, the most primitive meteorites known which consist of a fine-grained matrix in which coarse-grained particles are embedded. But, although they could have been produced through impact-shock from terrestrial rocks, "further investigation excluded that possibility and confirmed that the diamonds were extraterrestrial in origin." As he adds, "moreover, the indications were that the bolide was a comet rather than an asteroid."⁶

Our interest here centers on the fact that diamonds have turned up in the Ice Age drift deposits in Russia, Poland, Germany, and France, not to mention other countries in Europe and the Near East, as also in Sudbury, Ontario, and as far south as Ohio. The occurrence of these diamonds in non-metamorphosed sediments indicates that they could not have been produced by pressure and temperature *in situ*. Allan and Delair were therefore correct in proposing that

¹ *New Scientist* (November 4, 1995), p. 18.

² "Diamonds in the Sky," *Science Digest* (December 1981), p. 64.

³ C. Rist, "Neptune Rising," *Discover* (September 2000), p. 59.

⁴ "Diamonds in the sky"—see above.

⁵ C. Sagan, *Cosmos* (N. Y., 1983), p. 77.

⁶ T. Palmer, *op. cit.*, p. 63.

these diamonds would "have been injected into the sediments by some external mechanism."¹

"Diamonds, which occur in silicate rocks and are associated with volcanism[they additionally report], have also been discovered in considerable quantities within 'drift' deposits along the southern margins of Hudson Bay where no recent volcanic activity has occurred. It was initially suggested that glacial action during the so-called Ice Age transported the diamonds thither from Labrador, a region which later studies showed was actually never seriously glaciated. These diamonds...must therefore have been dispersed by other means."²

Meanwhile, Anders has further suggested that if shock waves from an ancient supernova sparked the creation of our Sun and present planets, "it's very likely that the material from which our solar system was formed was contaminated with these diamonds." And: "The diamonds on earth," he goes on, "may well be a mixture of those loaded with xenon and those without it."³ As reported elsewhere, one recent supernova, SN1987A, "may have the right conditions for the formation of microscopic diamonds."⁴ This theory was fed a certain amount of reliability through the nature of those peculiar black diamonds known as carbonados, the source and formation of which have long puzzled geologists. Known to be geologically old, the mystery of their formation is now thought to be solved through the suggestion that they accrued through the shock waves of just such exploding stars and falling to Earth in meteors as far back as Precambrian times.⁵

If micro-diamonds can be formed in this manner, it gives us reason to assume that proto-Saturn's flare-up would also have produced them. After all, it is easier to believe that micro-diamonds could have showered Earth from proto-Saturn's close proximity than from the astronomical reaches of galactic supernovae. But even if not—given that proto-Saturn's flare-up was less than feather-weight in status when compared to supernovae—there is more.

Through the utilization of the Imaging Spectrograph on the Hubble space telescope plus archival data from the International Ultraviolet Explorer satellite, Geoffrey Clayton and his research team detected a carbon crystalline substance in the dust clouds enshrouding newborn stars. Suspecting that this crystalline substance might be diamonds, they compared its ultraviolet signature to that of diamond-bearing meteorites. "The spectral data between the two samples was such a tight match," reports Paul Morledge, "that Clayton and his colleagues are confident that they have locked on to interstellar diamonds." Needless to say, these diamond grains are now believed to have been formed through the searing heat and extreme pressures produced by bygone supernovae. And, again, it has been suggested that space debris must have swept up some of this diamond dust as our Solar System was forming. More

¹ D. S. Allan & J. B. Delair, "Scientific Evidence for a Major World Catastrophe About 11,500 Years Ago: A Preliminary Selection," *Chronology and Catastrophism Review* XVII(1995), p. 45.

² *Ibid.*

³ M. D. Lemonick, *loc. cit.*

⁴ "Diamonds Are Forever" & "Diamond Mine," both in *Science Digest* (September 1989), p. 50.

⁵ See here *Science Frontiers* (September/October 1995), p. 6.; *The New York Times* (September 17, 1996).

importantly, however, additional observations now indicate that diamonds exist not only in the relative vicinity of stellar nurseries, but strewn throughout deep dark space.¹

"Because supernovae have been pumping out diamonds over the entire history of the galaxy, Clayton and his team reason that they must be a common constituent of interstellar dust. They might possibly account for five percent of the carbonaceous molecules lurking in interstellar space. Based on this discovery, Clayton estimates that the Milky Way may contain many trillions of tons of diamonds."²

If that is the case, there would be reason to believe that Earth, in the company of proto-Saturn, would have picked up its share of these cosmic diamonds as the proto-Saturnian system traveled through the reaches of space on the way to its historic rendezvous with our present Sun.

Earth, however, would also have produced its own diamonds. In fact, let us be fair about all this: Most terrestrial diamonds are recovered from a rock matrix that forms mostly in so-called diamond pipes, which are funnels, more or less oval in section, that narrow with increasing depth. Although diamonds have been mined from more than 4,000 feet below ground, the pipes continue to reach downwards to unknown depths. There is therefore not much doubt that diamonds form in the depths of our planet under great heat and pressure. Those found in alluvial deposits would have either been released through erosion from the tops of such pipes or spewed up by volcanic eruptions. Given the extensive volcanic activity that accompanied, and aided in, the melting of the Pleistocene glaciers, there would have been a fair amount of micro-diamonds, if not even sizeable ones, ejected into the atmosphere at the end of the Ice Age. These would then have precipitated back down to the surface. Thus the micro-diamonds found embedded in Pleistocene glacial drift could have come from one or another of the above-discussed sources and, perhaps, even from a combination of two or more of them. As explained, these sources would have been: (1) interstellar diamond dust; (2) volcanic spewing; and (3) perhaps even through the metamorphic processes of proto-Saturn's flare-up itself. The micro-diamonds would have landed on both the ice and the much more porous drift. The ice, as we know, melted, taking the micro-diamonds with it to the sea. The micro-diamonds in the drift remained behind. It is even possible that some of the micro-diamond-bearing meteorites would have fallen to Earth at the end of the Pleistocene, bringing with them not only diamonds, but also a fair share of iridium.

The above then leads us to ask: If diamonds did rain down from the sky at the end of the Pleistocene Ice Age, would man have been aware of it? Is there anything in the mytho-historical record that mentions diamonds falling from the sky? If we are talking of micro-diamonds, that is diamond dust, there is no way in which man would have noticed such precipitation. But if we mean sizeable chunks, both individually or in meteorites, he might have. Even so, to be quite honest, I have not been able to exhume any such reports from the mytho-historical re-

¹ P. Morledge, "Diamonds in the Rough," *Astronomy* (August 2002), pp. 24-26.

² *Ibid.*, p. 26.

cord. However, there *are* some indirect hints. For one thing, the diamond was considered a sacred stone.¹ Fair enough, so were other gems whether or not believed to have fallen from the sky. But the diamond was also associated with snakes and referred to as a snake-stone together with the carbuncle, the borax, the bezoar, and similar other stones. This came about through the traditional belief that such stones were once retrieved from the heads of snakes. Fair enough, there have been rare instances where “hard and stony excrescences have actually been found on some snakes.”² But, as Mircea Eliade notes:

“In fact it is only in very rare cases that a ‘snake-stone’ is actually a stone taken from the head of a snake; the enormous majority of magic and medicinal stones, whether or not they have any reptilian nickname, are connected with snakes in some way simply because of the original myth which can...be reduced to a metaphysical theme: ‘a monster guarding the emblems of immortality’.”³

Again, I hate to jump ahead chronologically, but, as I will indicate in a future volume, when the *axis mundi*, which we have seen being retracted, reconstituted itself not long after proto-Saturn’s flare-up, it was *inter alia* visualized as an upright snake holding the Saturnian orb in its gaping jaws. It was in this manner that the cosmic snake or dragon was said to have guarded the jewel of the sky which Eliade has interpreted as an emblem of immortality. So, also, it was believed that one of the eyes of the “undying serpent” was actually a diamond.⁴ A curious passage in Plato’s *Republic* goes as far as stating that the *axis mundi*, described there as “the spindle of Necessity,” was made of “adamant,”⁵ from which the word “diamond” is ultimately derived. Once proto-Saturn and/or its *axis* was visualized as a radiant jewel, terrestrial gem stones were regarded as its emissions. Thus, as Eliade tells us: “In many places, precious stones were thought to be fallen from the heads of snakes or dragons.”⁶

Fair enough, in itself, none of the above beliefs constitute evidence of diamonds falling from the sky. But now consider: In Sanskrit, the word for “diamond” is *vajra*, which also means lightning.⁷ One can say what one wishes, but there is nothing in a diamond, especially in the rough as it would have been discovered by prehistoric peoples, that would even symbolically connect it with lightning. I will not be adamant about it, but could it not perhaps be that the fall of diamonds was *accompanied* by volcanic, atmospheric, or even cosmic lightning? Thus, for instance, we come across the ancient belief that thunderbolts actually contain a diamond inside them.⁸

¹ M. Eliade, *Patterns in Comparative Religion* (London, 1996), p. 443.

² *Ibid.*

³ *Ibid.*

⁴ Philostratus, *Life of Apollodorus*, III:8.

⁵ Plato, *Republic*, X: 13-14.

⁶ M. Eliade, *op. cit.*, p. 441.

⁷ *Ibid.*, p. 443.

⁸ C. Blinkenberg, *The Thunderweapon in Religion and Folklore* (1911), p. 77.

BOMBARDMENT

We have already stated that there is no doubt that Earth would have been besieged by a fair amount of cosmic debris during the period under discussion. But from where would Earth have collected this debris?

There was a time not so long ago when the Solar System planets were numbered as nine. But then, in the early 1990s, Alan Stern came along with the proposition that that figure might be off by several hundred¹—perhaps even by as much as thousands.² According to Stern, enormous numbers of icy bodies may be orbiting beyond the orbit of Pluto. “There are a number of smoking guns in the Solar System,” he claimed, “that point to a previously unsuspected population of Pluto-like objects.” Among these smoking guns Stern pointed to Neptune’s moon Triton which orbits in the wrong direction and is explained by him as having once been a free-ranging body that passed too close to Neptune and was captured by its gravity. There is also the case of Chiron, discovered in an unstable orbit between Saturn and Uranus in 1977. Undecided whether Chiron was a very small planet or a very large comet, calculations of its odd orbit condemns it to eventual gravitational ejection from its present path. Thus Stern believes that Chiron, too, had originated as a body much farther out in the Solar System and that it was pulled in by the giant outer planets. Pluto itself has a moon, now named Charon, which was discovered in 1978. Nearly as big as Pluto itself, Charon (not to be confused with Chiron), forms with Pluto a double planet. Stern believes that these two planets had once orbited in individual paths before they approached and captured each other. This is bolstered by the fact that Pluto-Charon follow the most eccentric planetary orbit in the entire Solar System.³

As Stern reasoned, given the vast spatial volume covered by the Solar System, the chances of these few theorized encounters would be *about one in ten billion*. As Sam Flamsteed phrased it: “An obvious way to improve the odds is to increase the original population of the solar system from a handful of objects to hundreds—or perhaps a few thousand—swarming among the known planets.”⁴

“The gravitational fields of the outer planets would have swept some of the objects up and flung the rest out into space in slingshot fashion. The only reason Pluto, Charon, and Triton [to say nothing of Chiron] were left is that they stabilized gravitationally.”⁵

The evicted bodies, according to Stern, should still be orbiting the Sun at anything from 10 to 1,000 times the distance of Pluto.⁶

But was all this merely theory? Not the way things turned out.

¹ S. Flamsteed, “Planets by the Cartload,” *Discover* (February 1992), p. 16.

² A. Stern in interview, “Fly Him to the Moon,” *Discover* (February 2004), p. 20.

³ S. Flamsteed, *loc. cit.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

In June of 1999, Tom Van Flandern could talk about “one, and probably two, new asteroid belts orbiting the Sun beyond Neptune.”¹ By the year 2001, more than 300 objects were discovered in an outer region dubbed the Kuiper Belt—named after Gerard Kuiper who more or less predicted its existence in 1951—some 55 astronomical units from the Sun.² In the following years, this number rose. Pluto, the farthest planet from the Sun, ranges between 30 and 50 astronomical units. The question that astronomers found themselves asking was whether the Solar System’s extent ended at that limit. Fair enough, planetary scientists knew well enough that the Sun’s limit of gravitational and magnetic influence lay beyond that limit while countless comets orbiting much farther beyond Pluto’s orbit had long been theorized. Those comets are believed to be there because they, too, were ejected from the inner Solar System. What Lynne Allen, Gary Bernstein, and Renu Malhotra were looking for when they set out to find the edge of the Solar System was whether other bodies could have *formed* beyond that limit. Twenty four new objects were discovered by this team, nine of which were one hundred miles in diameter or even bigger. But while none of them lay much beyond Pluto’s orbit,³ that was soon to change.

Among the Kuiper Belt Objects—now termed KBOs—a giant ball of ice and rock with a diameter of about 800 miles was discovered in June of 2002. Dubbed Quaoar—pronounced “Kwah-o-wahr”—after the god of Creation believed in by the Tongva Indians that once inhabited the Los Angeles area⁴—it lies at a distance of 4 billion miles from Earth, more than a billion miles beyond Pluto. Also new to the Solar System’s family, with diameters ranging in the region of 560 miles, are an object named Varuna and one ignominiously numbered 2002 AW 197. While the compiling of the present work was in progress, the number of KBOs rose from 300 to more than 500,⁵ and it will have risen much more by the time it sees the light of day.

Personally, I take no stand concerning the theories proposed re the origin of these objects. All I am concerned with for the moment is the fact of their existence at the edge of the Solar System beyond the orbit of Pluto.

Returning now to our thesis, we have already noted that once the proto-Saturnian system entered the Sun’s domain of influence, the chances of its encountering any of the major planets the Sun might already have held in its gravitational embrace would have been minimal. On the other hand, the chances of encountering some of the much more numerous even if less massive objects in the Kuiper Belt at the edge of the Solar System would have been much higher and very much probable. Keep in mind that the proto-Saturnian system was traveling poleward with proto-Saturn leading, approaching the Solar System from “below,” at an angle somewhere in the vicinity of 23 or 26 degrees. As we have also indicated, the proto-Saturnian system did not approach the Solar System in an undeviating direction but

¹ T. Van Flandern, “The Exploded Planet Hypothesis—2000.” *New Scenarios on the Evolution of the Solar System and Consequences on History of Earth and Man* (Bergamo, 2002), p. 43.

² One astronomical unit is equivalent to 93 million miles.

³ R. Talcott, “Edge of the Solar System,” *Astronomy* (March 2001), p. 32.

⁴ D. H. Levy, “Pluto’s New Little Cousin,” *Sky & Telescope* (February 2003), p. 90.

⁵ P. L. Gay, “Giant Iceball Found Beyond Pluto,” *Astronomy* (January 2003), p. 24; D. H. Levy, *op. cit.*, pp. 90-91.

that, having felt the Sun's influence before plasmatic contact, it had started to spiral slowly in. This spiraling would then have brought the proto-Saturnian system not only in contact with the space dominated by the Kuiper Belt, it would have penetrated that belt and continued to spiral along the very orbits followed by the bodies contained within it. As it continued to spiral in, it would eventually have moved out of the Kuiper Belt, but, in the interim—and it is difficult to calculate for how long—the proto-Saturnian system would have become a temporary, but honorable, member of the Kuiper Belt club. It is therefore very likely that a few of the Kuiper Belt Objects would have come into near-contact with the proto-Saturnian system. Because of proto-Saturn's higher mass, some of the large Kuiper Belt bodies would have been captured into orbit around the gas giant—and of these we will have much to say in the next volume of this series. Smaller chunks, however, would have impacted proto-Saturn as well as Earth. Those that fell onto proto-Saturn would have probably been vaporized out of existence. Some of those that fell on earth would have been preserved. That the fall of meteorites was observed by early man is a well-accepted tenet of ancient history as well as the history of astronomy. John Lewis placed the entire subject in the proverbial nutshell when he wrote that:

"Long before modern times, long before there was such a thing as a university or a scientist, long before the invention of the alphabets and the rise of literacy, our remote ancestors observed brilliant fireballs in the sky, heard powerful sonic booms, and saw occasional meteorites fall to the ground...[A]ncient Chinese records attest to observed meteorite falls in terse, unembellished prose. Egyptian and Greek records from the dawn of recorded history recount stories of fireballs and meteorite falls. Some illiterate peoples clearly believed that meteorites were celestial objects (or beings) that fell from heaven, as we deduce from the documented Amerind practice of burying meteorites ceremonially, attended by beads and wrapped in blankets, in stone-lined graves. In many cultures, iron meteorites were assiduously sought for use by blacksmiths to make ceremonial objects and weapons. In some cultures, stony meteorites were venerated, or even, as in China until the twentieth century, ground up and eaten."¹

Going out on the proverbial limb, Lewis was in fact bold enough to claim that: "Even within the short history of *Homo sapiens*, the most violent events on Earth have been extraterrestrial impacts."² In fact he is of the belief—mistaken in our opinion—that: "Over time scales of one hundred thousand years and longer, the greatest tsunami waves produced on Earth must be from cosmic impacts."³ We have already, in our previous volume, documented adequate evidence concerning the fall of meteorites in ancient times and how these were, as one still is, venerated as sacred images from the sky.⁴ It is not here claimed that all of these venerated meteorites fell at the end of the Ice Age, although some of them might

¹ J. S. Lewis, *Rain of Iron and Ice* (N. Y., 1996), pp. 10-11.

² *Ibid.*, p. 157.

³ *Ibid.*

⁴ D. Cardona, *op. cit.*, pp. 77-82.

have, since meteorites continued to fall long after proto-Saturn's flare-up as they continue to fall to this day. Nor is it claimed that all meteorites originated in the Kuiper Belt, although it is more than possible that a few of them would have been dislodged by the passage of the proto-Saturnian system and catapulted into the inner Solar System. But any fall of meteorites during the thawing of the glaciers would probably have been blamed by our ancient ancestors on proto-Saturn's flare-up. Thus we note that, in west Africa, there are "traditions which hold meteors and meteorites to be a kind of solar excrement."¹ The probability, here, is that the belief originally pertained to the proto-Saturnian sun in lieu of our present one. This is lent credibility by the additional belief that meteorites are "the heralds of Mbomvei, the supreme being."²

In view of the fact that some meteorites are now believed to originate from supernovae, and despite the fact that proto-Saturn's flare-up was less than lightweight in comparison, we should at least additionally consider the possibility that some meteorites were actually ejected directly from proto-Saturn. Tom Van Flandern has proposed "the formation of comets, meteorites, asteroids and tektites from the explosion of a larger former planet in the Solar System by some unknown mechanism."³ As reported by Wallace Thornhill, Van Flandern shows that "many anomalies in the characteristics of our solar system may be simply explained by such an event."⁴ While, as noted earlier, we do not subscribe to Van Flandern's particular theory, our mytho-historically based scenario can still be used to validate most of his claims. In place of his exploding planet, we simply substitute proto-Saturn's flare-up. The possibility also exists that proto-Saturn's circumstellar disk might have already contained some sizeable chunks of debris from some previous catastrophic event. If so, most of these would have been released to fall back on proto-Saturn and/or Earth once the disk was blown away when proto-Saturn flared up. If that transpired, it is also possible that some of these objects would have been left behind once the disk dissipated. Mainstream astronomy has already toyed with the idea that the Kuiper Belt objects are "the stuff that was left over at the rim of the solar system after the planets formed—tailings from one of nature's construction projects."⁵ Could they not instead be tailings from one of nature's *destructive* episodes?

ALTERNATIVE POSSIBILITIES

While man already trod on Earth when the proto-Saturnian system invaded the Sun's domain, no one was out in space to see *exactly* what was transpiring. Man himself, even while engaged in trying to save himself from the ensuing series of calamities, could only later remember what he saw with his own eyes from the disadvantage of his terrestrial location. Stones fell from the sky, but, beyond that, he had no way of knowing that his world was now traversing through a belt laden with debris. Because proto-Saturn's flare-up was the most significant occurrence up in the sky, man blamed everything else that happened on what he was

¹ C. Sagan & A. Druyan, *Comet* (N. Y., 1986), p. 225.

² *Ibid.*

³ W. Thornhill, *The Electric Universe* (Beaverton, Oregon, 1997), p. 46.

⁴ *Ibid.*

⁵ T. Dickinson, "The Seeds of Life," *Equinox* (July 1997), p. 72.

to remember as his flaring god. And while, in that much, he was correct, he was left in complete ignorance concerning the physical how and why his world was suddenly experiencing the disastrous events that was to change his life for ever after.

What this means is that our scenario concerning Earth's collection of debris from what has become known as the Kuiper Belt is, at best, implied speculation. That the proto-Saturnian system would have spiraled through this space is almost beyond doubt. Can we, however, be positively sure that this space was already filled with the debris that is only now being discovered at the time in question? And, if not, what alternatives can we supply concerning the fall of some of this debris on planet Earth?

For instance, might not the Kuiper Belt objects be the debris of a catastrophic encounter between proto-Saturn and some other, now shattered, body? "Although high in number," it has been theorized, "the combined mass of the Kuiper Belt's inhabitants likely wouldn't amount to more than 10 percent of Earth's mass."¹ We are therefore not surprised that it has already been conjectured that these objects may represent "the disintegrated remains of a once much larger object formerly orbiting the Sun far out on the edge of the solar system as we know it."² It is then not entirely impossible that the KBOs represent the fragments of a planetoid that was drawn into proto-Saturn's Roche limit.

But then there is the problem concerning the *nature* of the KBOs. As it was discovered by Stephen Tegler and William Romanishin in the year 2000, the surface color of the KBOs come in two separate distinct shades. Some appear as red, others as gray. There seems to be no other shade. Moreover, the two classes seem to be separated from each other—at least, those farthest from the Sun come only in red.³ "Our findings are controversial because they are so unexpected," Tegler announced, "Most astronomers expected the colors of Kuiper belt objects to be the same."⁴

And, as Romanishin reported: "The existence of two surface colors suggests to us that something important and unexpected happened long ago in the outer solar system."⁵ What this seems to imply is that the KBOs are the remains of two, rather than one, original body. But, while possible, is it probable that proto-Saturn would have drawn *two* distinct bodies within its own Roche limit and that it shattered both of them? Or could it be that these two bodies had already been shattered, perhaps in contact with each other, at the time of proto-Saturn's passage?

Whichever the case, there is little doubt that proto-Saturn, together with Earth, would have been bombarded by some of these fragments. One or two might even have been catapulted outside the Belt. In fact, even as this was being written, in March 2004, one of these bodies seems to have been discovered. Named Sedna, after a prominent goddess of the Eskimos, the object in question, of a reddish reflectivity, is too small at 1700 kilometers in diameter to be acknowledged as a *bona fide* planet. Orbiting outside the so-called Kuiper

¹ W. Schomaker, "Big Fish in the Kuiper Belt?" *Astronomy* (October 2001), p. 24.

² D. S. Allan & J. B. Delair, *Cataclysm!* (Santa Fe, New Mexico, 1997), p. 210.

³ "Astronomers See Red," *SIS Internet Digest* (2000:2), p. 19.

⁴ *Ibid.*

⁵ *Ibid.* See also *Nature* (October 26, 2000).

Belt in a highly eccentric ellipse, with a predicted perihelion in the neighborhood of 76 AU, and an aphelion of roughly 1000 AU, it has been dubbed a planetoid. Moreover, its elliptical orbit has been calculated to be somewhere from 12,000 to 10,500 years or so.¹ As Wallace Thornhill noted:

“Sedna is an interesting object because it cannot have formed where we find it, according to conventional cosmology. It requires an ad hoc expulsion from the inner solar system.”²

Expulsion from the inner Solar System might not be a viable explanation, but expulsion from the region of the so-called Kuiper Belt through the passage of the proto-Saturnian system would definitely be in keeping with our proposed scenario. Thornhill, on the other hand, has a slightly different take which should also be considered.

“My view [he wrote] is that proto-Saturn ejected a lot of material equatorially in spectacular discharge activity as it adjusted to the Sun’s electrical environment. I would expect the discharge activity to [have been] strongest when proto-Saturn crossed the Sun’s current sheet (roughly the plane of the ecliptic). So bodies like Sedna probably have orbital elements that reflect their point of origin in the ecliptic plane and their initial velocity in Saturn’s equatorial plane.”³

And, as Amy Acheson noted,⁴ if this is Sedna’s first return to perihelion, it would mean that whatever event drove it into its present orbit would have transpired around 12,000 to 10,000 years ago which, given the preliminary calculations involved, brings it close to our benchmark date.

IMPACTS

Returning now to terrestrial impacts, as Thornhill noted, no meteorites “have been found in any ancient geological formation, which suggests that most surviving meteorites are relatively quite young.”⁵ The question, however, is: *How young?* Better still, if impacts did occur at the time in question, where are all the relevant craters?

To begin with, smaller meteors would have burned up during their entry through Earth’s atmosphere. Not only would they not have formed craters, they would not have left anything of themselves. Falling meteorites, on the other hand, do not always produce craters, just as not all craters are due to impacting meteorites.⁶ The Hoba specimen, the world’s largest single iron meteorite, is still lying where it fell near the African town of Grootfontein in present-day Namibia. Half buried in the ground, its weight has been estimated as 66 tons. No crater was

¹ *New Scientist* (March 20, 2004), p. 15..

² W. Thornhill, on the Intersect electronic discussion group (March 25, 2004).

³ *Ibid.*

⁴ A. Acheson, on the Intersect electronic discussion group (March 23, 2004).

⁵ W. Thornhill, *The Electric Universe* (Beaverton, Oregon, 1997), p. 45.

⁶ *Ibid.*, pp. 63 ff.; L. A. G. Hissink, “Wolfe Creek Crater: Some Recent Geophysical Data,” *AEON* VI:4 (August 2003), p. 17.



The Hoba meteorite lying half buried where it fell in Namibia.

formed.¹ Neither did whatever fell at the Tunguska site on June 30, 1908 leave a crater.² Hundreds of meteorites have been discovered where they fell without having left an impact crater behind. Meanwhile over a hundred craters have been discovered in which no meteorites were found.³

To date, more than 200 craters believed to be the result of impacting meteorites on Earth's land surface have come to light. Fair enough, most of them have been dated to millions of years ago. And yet, as Carl Sagan and Ann Druyan asked: "How accurately determined are the times of impact?" and "How reliable are the dates of cratering...?"⁴

Even so, what we are looking for are meteorites or craters that can be dated to the end of the Pleistocene epoch. Have any been so recognized?

¹ K. F. Weaver, *op. cit.*, pp. 395, 410.

² *Ibid.*, p. 402.

³ *Ibid.*, p. 415.

⁴ C. Sagan & A. Druyan, *op. cit.*, p. 294.

Using a series of technical data which we need not go into, Fred Hoyle has determined that several terrestrial impacts have occurred somewhere around 12,700 and 10,000 years ago.¹ Research on the Koeftels Crater in Oetztal, Tyrol, has proven its impact origin through its signatures of iridium, shatter cones, and stress minerals. Nickel-iron fragments have also been found associated with the crater, with a high radon content in the immediate region. Also associated with the crater are nearby landslides—all of which have been dated to c. 9500 years ago.² Another crater in Bolivia, spotted through satellite photography in the early 1980s, and studied in situ in 1988, is located in soft sediments and is also attributed to a fall 10,000 years ago.³

A 34-ton iron specimen fell on Greenland 10,000 years ago and has, since then, been revered by the Eskimos of Cape York.⁴ Now known by the name of Ahnighito (pronounced Ah-na-heet-o), it lies on display as the world's second largest single meteorite at the American Museum of Natural History in New York City. Reverence did not, however, keep the Eskimos from fashioning harpoon tips and knives from some of its fragments.⁵

Meteorites, however, would also have fallen into the oceans. And, since Earth contains a much vaster oceanic area than land surface, it stands to reason that more meteorites would have landed in sea-water than on land. According to Alexander Tollmann (who, unfortunately, confused two separate catastrophes) an oceanic impactor will only produce a crater on the bottom if its diameter exceeds the depth of the ocean.⁶ Despite that, the number of sea-bottom craters that have so far been detected is copious. Thus, for instance, a seven-fold impact "in all the world's oceans" 9,640 years ago has been postulated on the evidence of ice-core samples.⁷

To back this up, craters have been located on the ocean floor in the Adriatic, near New Zealand, in the Gulf of Mexico, the Bering Sea, the Great Lakes of North America, the South China Sea, the Baltic, the Aegean, the Gulf of Corinth, the delta of the Orinoco, and the shelf off Nova Scotia.⁸

Worthy of special notice is a wide expanse of the ocean bed in the middle of the North Sea which contains so many craters that it has been likened to the lunar topography.⁹

(Note: The so-called Carolina Bays and other oriented lakes which feature so prominently in the works of other cosmic catastrophists, and which are now undeniably recognized as the scars of impacting bodies, are the result of a later catastrophe which will be featured in a future volume of this series.)

¹ F. Hoyle, *The Origin of the Universe and the Origin of Religion* (Wakefield, Rhode Island, 1993), p. 91.

² A. Tollmann, "The Flood Impact and its Predecessor at the Transition of Pleistocene to Holocene," *New Scenarios on the Evolution of the Solar System and Consequences on History of Earth and Man* (Bergamo, 2002), p. 148.

³ *Science Frontiers* (November/December 2002), p. 3.

⁴ K. F. Weaver, *op. cit.*, p. 410.

⁵ *Ibid.*, p. 395.

⁶ A. Tollmann, *loc. cit.*

⁷ P. Standring, "Potpourri," *Chronology & Catastrophism Review* (2002:2), p. 53.

⁸ T. Gold, *Power From the Earth* (London, 1987), p. 73.

⁹ R. McQuillin & N. Fannin, "Explaining the North Sea's Lunar Floor," *New Scientist* 83 (1979), p. 90.

Chapter 20

Life in the Balance

EXTINCTIONS

With Earth's sub-brown dwarf of a sun flaring up, the heat ensuing from its blast, the radiation that showered down, the resulting multitudinous volcanic eruptions, the heaping up of mountains, earthquakes, landslides, mudslides, the floods from the melting ice, irruption of the sea over vast stretches of land, rising and sinking shore lines, bombardment from impacting meteorites, it is not conceivable that life would have escaped unscathed. And, to be sure, a vast portion of Earth's animal population is known to have been wiped out of existence at the end of the Pleistocene epoch. While not as extreme as the extinctions of previous eras prior to the advent of man, the snuffing out of life forms at the end of the Ice Age is not to be underrated. It is now recognized that the Pleistocene epoch was "the heyday of large mammals," but "about 10,000 years ago...almost all the large animals disappeared."¹ Living in the nineteenth century, Alfred Wallace had already found reason to stress that:

"We live in a zoologically impoverished world, from which the largest and fiercest, and strangest forms have recently disappeared; and it is, no doubt, a much better world for us now that they are gone. Yet it is surely a marvelous fact, and one that has hardly been sufficiently dwelt upon, this sudden dying out of so many large mammalia, not in one place only but over...the land surface of the globe."²

And yet, what Wallace termed a "sudden dying out" has, by others, been interpreted as sudden only in a geologic sense since the disappearance of most of the Pleistocene mammals is mainly understood to have occurred "in the relatively brief span of a single millennium."³ In this we beg to differ—which is not to say that the extinctions took place in the brief span of a day, a month, or even a year. A thousand years, however, are not called for.

Alan Cooper has his own reasons for suggesting "a single millennium" for the disappearance of most of the Pleistocene fauna. "When a species begins to lose its habitat, as happened when Earth warmed up and the grasslands turned into forest," he says, "what you see is a steady dwindling of genetic diversity."⁴ Others, however, blamed it all "on a prolonged drought during the amelioration of climate following the last glaciation."⁵ It is difficult to see

¹ J. Kahn, "Monsters on Ice," *Discover* (March 2004), p. 54.

² T. Flannery, *The Future Eaters* (N. Y., 1995), p. 181.

³ J. Kahn, *lo. cit.*

⁴ *Ibid.*, p. 56.

⁵ D. V. Ager, *The Nature of the Stratigraphical Record* (London, 1973), p. 24.

how a prolonged drought at the end of the Ice Age could have led to grasslands turning into forests. Besides, that mammals can easily adapt to a changing environment is evidenced by the far-reaching extent of habitation that has been occupied throughout the ages by the pachyderms, from woolly mammoths in the Arctic to the present elephants in equatorial Africa. Given the millennium or so that Cooper believes in, animals could easily have migrated to more suitable regions as, in fact, some of the survivors—among them the Arctic fox, the saiga antelope, and the reindeer—are known to have done.¹ In fact, Cooper himself realizes that a change of climate, which is what would have caused a change in the environment, raises some serious problems of its own.²

Keep in mind, as Derek Ager noted, that these extinctions did not result from the Pleistocene glaciation, but sometime after the retreat of the ice.³ The retreat of the ice, however, was not itself the cause of the extinctions as neither was it the cause of the change in climate that ensued. It was, therefore, not without reason that the glaciologist J. Charlesworth lamented his own discipline when it came to this particular epoch in world history. “Perhaps no geological period has so divergent views as has the Pleistocene,” he wrote. “Indeed, Quaternary geologists have long enjoyed the unenviable reputation of being among the most disputatious.”⁴

As if all this was not enough, a new theory was advanced by C. O. Sauer in 1944 which blamed the extinction of Ice Age fauna on man himself, such as “by hunters making fire-drives in pursuit of game.”⁵ But, as Immanuel Velikovsky rightly noted, “Stone Age hunters burning down forests would not have been able to destroy completely many species of animal, leaving not one of the kind from one coast to another and from Alaska to Tierra del Fuego.”⁶ Nor was this anything of an exaggeration on Velikovsky’s part. North America alone, as Trevor Palmer noted, lost 75% of its genera of animals which included many of its mammoths, mastodons, horses, tapirs, camels, ground sloths, the saber-toothed cats, various bears, giant rodents, musk oxen, moose, and deer.⁷

“In all, 33 genera disappeared between 12,000 and 10,000 years ago, and possibly a much shorter period than that. In South America at about the same time, 46 genera became extinct. These were all large mammals, including mastodons, edentates, rodents, ungulates, carnivores, horses, peccaries, camels and deer. The extinctions of large animals in the old world were more modest, but the long-horned buffalo, giant hartebeest, giant Cape horse, a warthog-like pig and two species of springbok disappeared completely from Africa at the end of the Pleistocene, and the European

¹ “A Catastrophe 10,000 BC?” *Chronology & Catastrophism Workshop* (1986:2), p. 24.

² J. Kahn, *op. cit.*, p. 59.

³ D. V. Ager, *loc. cit.*

⁴ G. Schultz, *Ice Age Lost* (N. Y., 1974), p. 25.

⁵ I. Velikovsky, *Earth in Upheaval* (N. Y., 1955), p. 230.

⁶ *Ibid.*

⁷ T. Palmer, “The Late Pleistocene Extinctions: No Evidence for Plato’s Atlantis,” *Chronology & Catastrophism Workshop* (1987:2), pp. 12-13.

woolly rhinoceros, woolly mammoth and giant deer became extinct at this time. Nine other genera disappeared from Europe but survived on other continents.”¹

In South America, “diluvial deposits containing bones of animals of [Pleistocene] age extends over the whole Brazilian plain, from the flanks of the Cordilleras to the borders of the Atlantic.”² Similar remains have also been found in abundance on the great plateau of Bolivia and “west of the mountains both in Peru and Chile,”³ to which can also be added the deposits discovered in Patagonia, Argentina, on the pampas and in caves, in Ecuador, Paraguay, Colombia, and Venezuela.⁴

“Historically the bones of Pleistocene mammals, especially those of the larger genera, were noticed in South America soon after the Spanish Conquest. Curious theories were advanced by the early discoverers to explain the presence of these bones, usually by reference to a race of giants who were supposed to have anciently inhabited various parts of the New World.”⁵

Even in Australia, the giant kangaroo and rhinoceros-sized wombat, among many others, were completely wiped out by a catastrophic event dated around 12,000 to 10,000 years ago.⁶

We could, of course, add considerably to the list with much more detailed descriptions of these finds, but to do the subject justice would require a lengthy volume on its own. The little that has been presented should be sufficient to show that humans could not have been responsible for so much killing. By the mid 1940s, F. Rainey could conclude that: “Though man was on the scene of the final perishing, his was not...the appetite nor the capacity for such giant slaughter.”⁷ Moreover, this conclusion was reached on the sole evidence exhibited by the vast amount of bones belonging to extinct animals in Alaska alone. Yet even were we to restrict ourselves to that sole locality, the extent of the extinctions would still have been too much for prehistoric man to have achieved. “Even with the known destructiveness of man,” Rainey went on, “it is difficult to visualize how these early hunters, armed with puny flint-tipped spears, could have destroyed enough animals to cause complete extinction.”⁸ And, as Loren Eiseley emphasized: “We are not dealing with a single, isolated relict species but with a considerable variety of Pleistocene forms, all of which must be accorded, in the light of cultural evidence, an approximately similar time of extinction.”⁹

Despite all that, the theory which blamed man for the extermination did not itself become extinct—not for a while, at least—even though voices continued to be raised against it.

¹ *Ibid.*, p. 13.

² C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), p. 287.

³ *Ibid.*

⁴ *Ibid.*, pp. 287-288.

⁵ *Ibid.*, p. 287.

⁶ “A Catastrophe 10,000 BC?” *Chronology & Catastrophism Workshop* (1986:2), p. 24.

⁷ I. Velikovsky, *loc. cit.*

⁸ *Ibid.*

⁹ *Ibid.*, p. 231.

Throughout the entire 1980s, “Man-the-hunter” was still being held responsible by some “for the extinctions in a form of prehistoric overkill.”¹ By then the theory depended “upon the sudden arrival of men in regions where animals had no adaptation towards evasive action.”²

“However, the likelihood of small bands of humans being able to exterminate huge and often dangerous animals is small...The evidence in Australia is also contrary to the theory, as man is known to have entered the continent at least 30,000 years ago and therefore had coexisted with the large mammals for some 20,000 years. The bones of extinct Australian animals are never in the same layers as human artefacts.”³

That, however, was in 1986. The picture changed entirely before this work came to an end. The opposite is now being claimed, that a “newly compiled fossil record of Australian mammals bolsters the notion that humanity’s arrival on the island continent led to the extinction of many large creatures there.”⁴ By then, the arrival of humans in Australia had been pushed back to 50,000 years ago.⁵ These extinctions, however, are claimed to have “occurred at least 25,000 years before the most recent ice age began,”⁶ so they need not bother us at this point.

New Zealand presents a different case in which the extinction of the moa, a giant flightless bird some of which achieved twelve feet in height, can definitely be attributed to human overkill. There were twenty species of this bird which disappeared in North Island only about 500 to 700 years ago, probably before the arrival of the Maori, which would mean by an earlier incursion of Polynesians. The moas lingered longer on South Island, definitely down to the time of Captain Cook’s visit. But, eventually, even these disappeared.

One must keep in mind, however, that, despite its speed, the moa was an ungainly animal when cornered and an easy prey to spear-wielding hunters. Moreover, it was native only to New Zealand, two smallish islands when compared to the vast Pacific or, worse still, to the rest of the inhabited world. What needs hardly be told is that, while their remains have been traced as far back as the Pliocene epoch, moas obviously survived the Pleistocene extinctions. Not so, of course, with the North American mammoth, a well-known Pleistocene pachyderm, the extinction of which is also sometimes blamed on human hunters.

THE MAMMOTH HUNTERS

That mammoths fell at the hand of man came to light in 1960 near Rawlins, Wyoming, when land was being cleared to hasten the flow of water in a gas-drilling operation. The buried bones of a monstrous beast had snagged the digging scoop. It took George Agogino,

¹ “A Catastrophe 10,000 BC?” *Chronology & Catastrophism Workshop* (1986:2), p. 24.

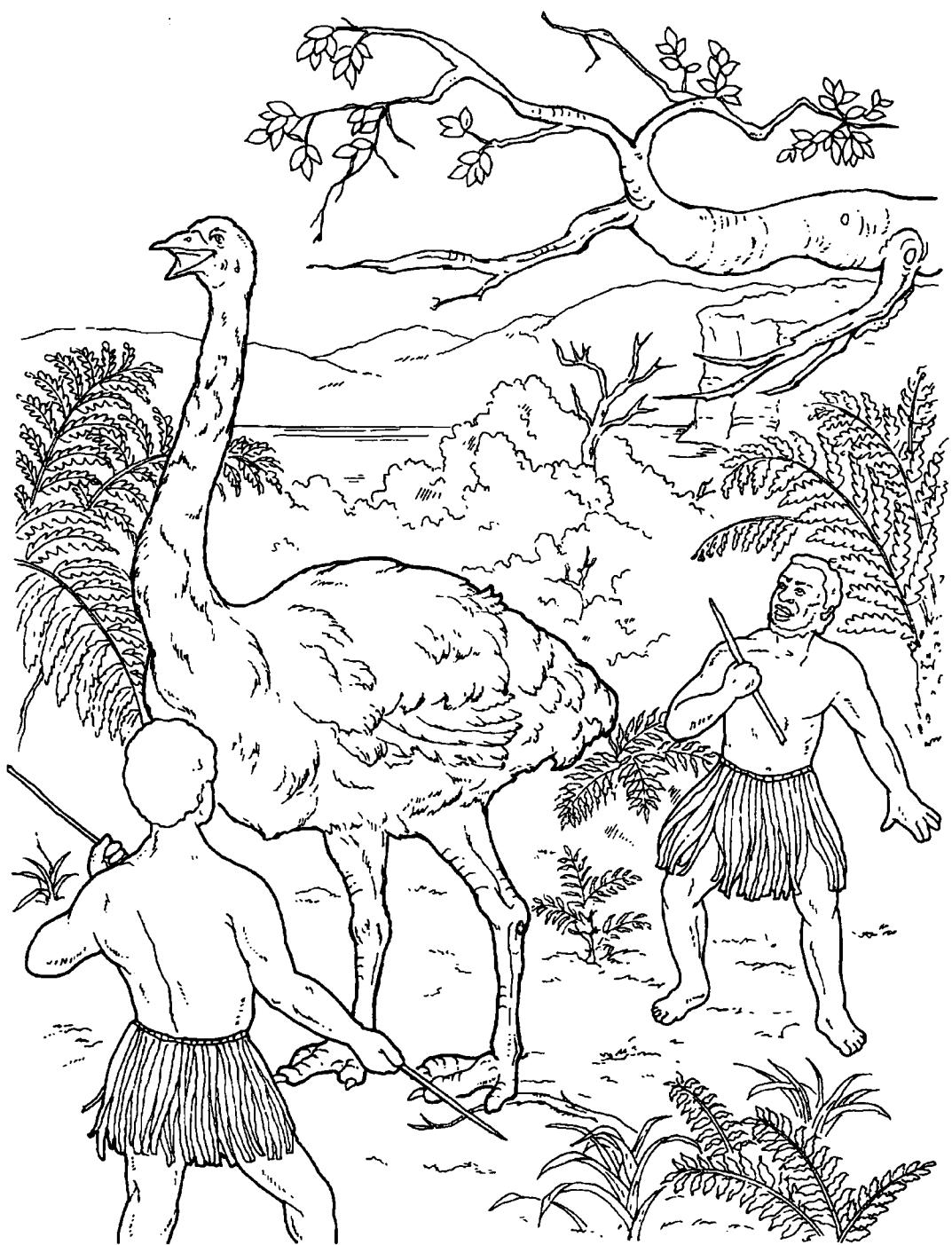
² *Ibid.*

³ *Ibid.*, pp. 24-25.

⁴ S. Perkins, “Going Under Down Under: Early People at Fault in Australian Extinctions,” *Science News* (January 20, 2007).

⁵ *Science News* (March 15, 2003), p. 173.

⁶ S. Perkins, *loc. cit.*



**Early Polynesian hunters who drove the moa to extinction prior to the advent of the Maori.
(Illustration by Y. S. Green.)**

together with his student, Richard Lane, who were soon at the site, just one look to realize that the bones belonged to the Ice Age mammoth known as *Mammuthus columbi*, who is known to have become extinct some 8,000 years ago, a cousin to the better known *Mammuthus primigenius* of Arctic regions.¹

While oil-digging operations were temporarily postponed, excavation continued in an effort to learn more concerning the mammoth's demise. It was not long before the hand of man became evident when a large, worn stone knife came into view.²

"At once the picture changed [*National Geographic* reported]. Mammoth remains alone were well worth excavation and study. But seldom in history—perhaps less than a dozen times—had scientists excavated evidence of man and mammoth together in North America."³

Evidence of man's encounter with the mammoth multiplied. Unearthed during the excavation was "a chopper, a scraper, a few flakes chipped from some stone utensil, and quartzite rocks the size of bowling balls."⁴ By the following year the mammoth's vertebra was discovered seven feet away from the main skeleton, which seemed to indicate that man had severed this section for consumption. The discovery of a large flint knife beside the vertebra, together with a cache of split and broken bones, cemented this conviction. Battered stones, "clearly used to crush the bones to extract marrow for food," added to the picture.⁵

Smashed bones, some of which bore the marks of scrapers, together with man-made tools and implements continued to turn up.⁶ In the end, the evidence led to the following scenario:

"The mammoth [got] trapped in the black mud of [a] bog. On the bank, hunters watched as the struggling animal sank deeper. When they saw that the beast was hopelessly bogged down, they stoned it with boulders.

"They could not crush the massive skull, but finally, after continual pounding, the mammoth weakened. Then a brave hunter perhaps finished the battle with a well-placed spear. The men swarmed over the giant carcass with sharp knives of stone, hacking off chunks of still-warm meat. They fought against the sucking mud that eventually engulfed the hulk, leaving only the black ooze—and silence."⁷

It is possible that something of the sort might have transpired, but there is one discordant note in the above scenario—and it concerns the "brave hunter" who "finished the battle with a well-placed spear." In fact, as the same report notes: "Despite the presence of stone knives,

¹ C. Irwin, *et al.*, "Wyoming Muck Tells of Battle: Ice Age Man vs Mammoth," *National Geographic* (June 1962), pp. 828-831.

² *Ibid.*, p. 831.

³ *Ibid.*, pp. 831-832.

⁴ *Ibid.*, p. 832.

⁵ *Ibid.*, p. 834.

⁶ *Ibid.*, p. 835.

⁷ *Ibid.*, pp. 828-829.

(Illustration by John Green.)
Paleoindians attacking a trapped mammoth.



we found no spear-points in the bog.”¹

Although the knives and other implements incriminate human butchers, if not hunters, the excavators of this particular mammoth had no means of telling what type of men they were.

“Our knowledge of the men is less complete. Their forebears had migrated from Asia, no one knows exactly when. They existed in pitifully small numbers, and probably resembled American Indians of historic times. Possibly they were a little more rugged.”²

Before long, it became accepted that the mammoth had already been hunted by Neanderthal man. This was supposedly facilitated through the invention of the stone-tipped spear.³ It is doubtful, however, that mere spear thrusts would have brought such a massive beast down even if it had first been hemmed in against an obstacle such as a rising cliff or, as also theorized, “into a dead-end arroyo.”⁴ More believable is that man the hunter would have constructed traps into which an isolated member of the herd would have fallen. In this way, not only could the hunters lunge at the beast with spears, but others could have assisted by pounding it with fair-sized rocks and small boulders.⁵ That traps were used to ensnare mammoths, at least by the Cro-Magnons, seems to be evidenced by a painting from Bernifal, France, which has been interpreted by just about one and all as a captured mammoth in just such a contraption.⁶ Whether this is what is actually depicted—see illustration on opposite page—remains a moot question. Even so, as Josef Wolf noted, the trapping and killing of a mammoth would have required the “co-operation of a fairly numerous band of hunters.”⁷ Moreover, as he goes on, after falling into the pit and harassed with spears and rocks, the mammoth would probably have taken a long time to die.⁸ And, as noted by Thomas Canby, even when trapped against an obstacle, “these most efficient predators would perhaps not rush into hand-to-tusk combat but wait until the animal was mortally exhausted.”⁹

Further evidence of “ancient butchers dismembering a mastodon” some 22,000 years ago has been discovered “near the sunbaked Mexican city of Puebla.”¹⁰ And, in Venezuela, the skeletons of four mastodons have come to light, one of which still had the spear tip of what is known as an El Jobo point lodged in its pelvic cavity. Some time later, the skeleton of yet another mastodon was also unearthed and it, too, had an El Jobo spear point lodged in the pelvic

¹ *Ibid.*, p. 836.

² *Ibid.*

³ L. Barnett, *et al.*, *The Epic of Man* (N. Y., 1961), pp. 24-25; see also T. Y. Canby, “The Search for the First Americans,” *National Geographic* (September 1979), p. 342.

⁴ T. Y. Canby, *op. cit.*, p. 347.

⁵ Z. V. Spinar, *Life Before Man* (London, 1973), pp. 212-213.

⁶ J. Jelinek, *The Evolution of Man* (London, 1975), pp. 413, 434-435 where, unfortunately, the locale re illustration number 693 was swapped with that of number 695; J. Wolf, *The Dawn of Man* (N. Y., 1978), p. 111.

⁷ J. Wolf, *op. cit.*, p. 109.

⁸ *Ibid.*, p. 111.

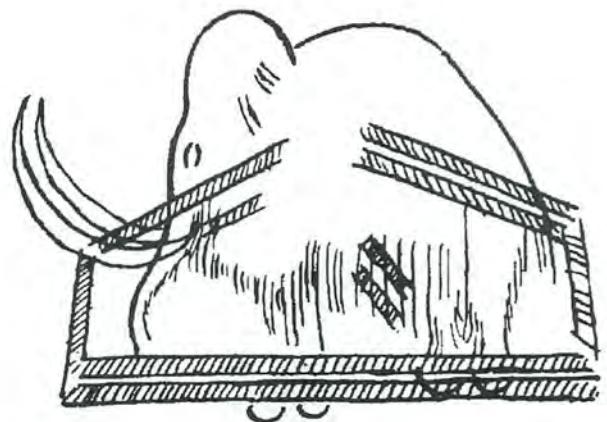
⁹ T. Y. Canby, *op. cit.*, p. 347.

¹⁰ *Ibid.*, p. 352.

cavity.¹ Two identical targets in two separate individuals can hardly be relegated to coincidence. This suggests "a thrust into the bladder in order to poison the animal," was the opinion of José Cruxent, "a technique still practiced today [that is in 1979] by African elephant hunters."² The kill has been dated to 13,000 years ago, but this was derived through the radiocarbon dating of some twigs which were presumed to be samples of the mastodon's stomach contents³—which remains highly debatable. In fact all of these dates remain questionable since most of them were derived through bone samples that were subjected to the same method. Archaeologists, as Canby, who recorded it for *National Geographic*, was soon to find out, generally distrust radiocarbon dates of bone objects.⁴

Piles of mastodon bones turned up in the Great Lakes area of North America. Most of them showed signs of butchery. This fed fuel to the theory of overkill by human beings. But when these bones were re-examined, the picture became slightly changed. It was now thought the bones had actually been *stored* underwater. Although this did not exempt man from the slayings, the large collections of butchered bones would appear to far outnumber those of mastodons who had died through other means simply because the cache of stored bones would be more likely to be preserved.⁵ But how many of these butchered bones would have resulted from actual kills? How many could have been the result of coming across a carcass of a recently dead elephant. Unless putrefaction would have already set in, such a find would have been a blessing.

Ross MacPhee, too, blames the extinction of the mammoth on man, but not due to overkill through hunting.⁶ After all, the scarcity of mammoth-kill sites in North America has led one authority to state that "North American hunters seem to have shied away from the burly beasts."⁷ And the reason offered for this, lame as it may seem, is that mastodons, and therefore also mammoths, may have fed on spruce twigs the resinous nature of which "could have



Cave painting from Bernifal, France, which has been interpreted as a mammoth snared in a trap

¹ *Ibid.*, p. 356.

² *Ibid.*

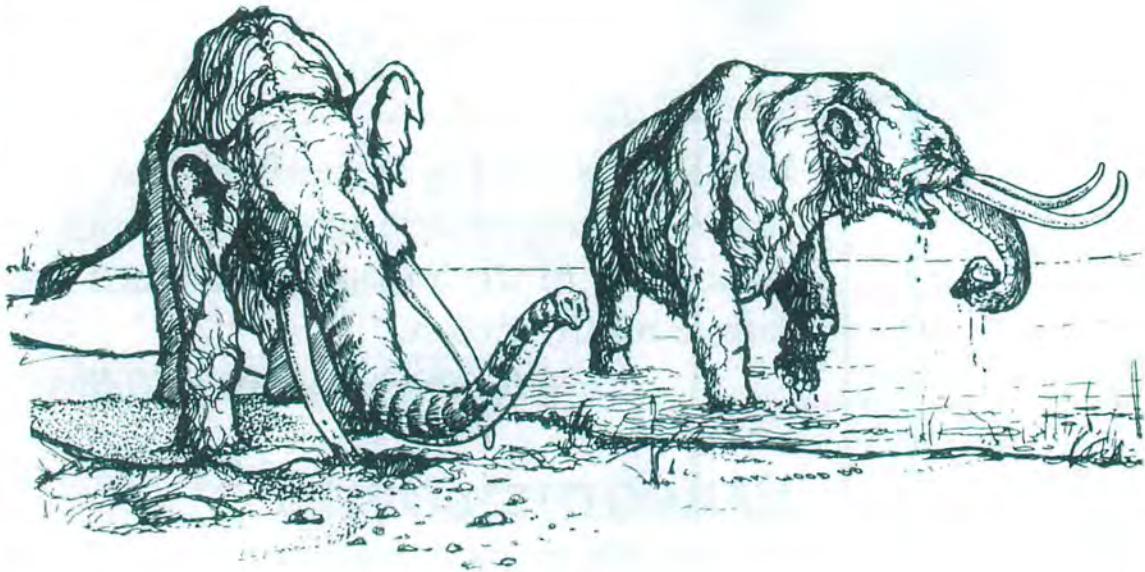
³ *Ibid.*, pp. 356-357.

⁴ *Ibid.*, p. 348.

⁵ *New scientist* (January 27, 1990), p. 33.

⁶ R. Stone, "The Cold Zone," *Discover* (February 2001), pp. 58 ff.

⁷ T. Y. Canby, *op. cit.*, p. 359.



Mammoths digging for salt on the shores of an ancient lake in Michigan.

given their meat an unpalatable flavor.”¹ MacPhee, like others, could not help noticing what had become a recurring theme among palaeontologists in what he terms a “dreadful syncopation—humans arrive, animals disappear.” But, discounting overkill, what was it about humans “that dealt a hammer blow to mammals large and small?” MacPhee’s particular belief is that the mammoth succumbed to “an apocalyptic disease” that was introduced by man against which Pleistocene fauna had no defense.²

“Contact with humans, MacPhee says, might have exposed woolly mammoths to a new pathogen against which their immune systems could not mount an effective defense in time. If female mammoths were like their nearest relatives, the elephants, which are pregnant for nearly two years, even individuals resistant to the pathogen might not be able to breed fast enough to save the species.”³

These extinctions, MacPhee tells us, “occurred on nearly all habitable landmasses except Africa and Eurasia, where humans evolved alongside animals,”⁴ so that whatever pathogens were rampant were common to one and all. According to G. E. Pilgrim, however, similar extinctions *did* occur in both Africa and Asia and, needless to say, these could have had nothing

¹ *Ibid.*

² R. Stone, *loc. cit.*

³ *Ibid.*, p. 63.

⁴ *Ibid.*, p. 62.

to do with glacial conditions *or their aftermath*.¹ Also, as is now becoming quite apparent, the infiltration of man into North America long preceded the end of the Ice Age. Not only that, but, as we have seen above, mammoths and man have been in contact with each other for thousands of years before the extinction of the former. And if man did not introduce disease before that time, what would have been different following the event? Besides, as MacPhee himself noted, in the 10,000 years in between the end of the Ice Age and the present, "not a single mammal species disappeared from North America."² How is it that human disease did not affect these other beasts?

Actually, the disease theory had already been considered by Loren Eiseley in 1946. He, too, was of the opinion that epidemic disease, or climatic events, "are sufficient to explain an enormous reduction in the number of a particular species, but [as he goes on] are yet inadequate to illuminate the reason for the inability of the species to rebound, in a few years, from its decimated condition."³ And, as Velikovsky rightly noted, "no known disease would attack so many species and genera."⁴

An entirely different theory has blamed the demise of North American mammoths on the lack of salt deposits. The craving for salt by modern elephants is well known. In that much the mammoth could not have been different. This is evidenced by mammoth fossils at 203 sites discovered around a salt mine near Detroit. "When the glaciers retreated from much of North America about 10,000 years ago," it has been reasoned, "earth and debris once locked into the ice were left behind, covering many above-ground salt deposits."⁵ But if the detritus in question ended up covering salt deposits, would not the same deposits have been previously covered by the much more deeper ice? Besides, it remains doubtful that the salt is a required constituent for pachyderm survival. What about all the other species of animals which do not crave salt but which also became extinct in North America?

Despite all the above, mammoths did *not* become extinct at the end of the Ice Age. In Arctic regions they continued to exist until the next cosmic onslaught thousands of years later.⁶ And even then, a species of dwarf mammoth survived on Wrangel Island in eastern Siberia from 3,800 to 3,500 years ago—some "700 years after the Egyptians built their great pyramids at Giza."⁷ But while these facts have been pounced upon by past catastrophists, they do nothing to alleviate the problem in North America where Pleistocene pachyderms, to say nothing of other mammals, did *not* survive. Four species of mammoth and three types of mastodon vanished completely from the continent.⁸

¹ G. E. Pilgrim, "The Lowest Limit of the Pleistocene in Europe and Asia," *Geological Magazine* LXXXI:1, p. 28.

² R. Stone, *loc. cit.*

³ L. C. Eiseley, *American Anthropologist* XLVIII (1946), p. 54.

⁴ I. Velikovsky, *op. cit.*, p. 231.

⁵ "Mammoth Cravings," *Science Digest* (May 1989), pp. 83-84.

⁶ *The Egyptian Gazette* (September 13, 1984)) as cited in *SIS Workshop* 6:2 (August 1985), p. 35; see here also D. Cardona, "The Demands of the Saturnian Configuration Theory," *AEON* VI:1 (February 2001), pp. 66-69.

⁷ B. Bower, "Dwarf Mammoths Outlive Ice Age," *Science News* (March 27, 1993), p. 197; R. Stone, *op. cit.*, p. 63.

⁸ T. Y. Canby, *op. cit.*, p. 363.

MASS SLAUGHTER

Large-scale massacres of mammoths in lieu of sporadic killings formed the accepted conclusion by the 1960s.¹ By then, the blame for the extinction of the American mammoth was placed squarely on the shoulders of the Clovis people, forerunners of the Amerinds, named for their long, fluted spear points first discovered near Clovis in New Mexico as early as the 1930s.² These plainsmen had "one enormous advantage—the keen stone spear points that are the hallmark of their culture."³ As noted by Robert Claiborne for Time-Life Books:

"The seemingly delicate Clovis points are actually lethal tools, and the Clovis people make effective use of them in killing the great woolly mammoth. Archeologists have found ample evidence of the Clovis points' deadliness embedded in the remains of the hunters' mammoth prey...The points are generally called projectile points, but whether the tools or weapons of which they formed the cutting tip were in fact projectiles is a matter of conjecture. Unquestioningly they are spear points of some sort (they are far too big for arrow heads and, besides, the bow and arrow was unknown to Clovis hunters), but there is no direct evidence to show whether the spears were used primarily for thrusting, as lances, or for throwing, as javelins. Unlikely as it seems, even the immense mammoths could have been taken by men on foot, armed only with lances. This is the way elephants were hunted in Africa until quite recently. Like the modern elephant hunters, the mammoth's attackers may have worked in two groups, some acting to divert the animal's attention while others dashed in to stab at its belly and legs from close quarters.

"But many experts think Clovis man avoided such dangerously close encounters by throwing their weapons at their prey. To do so effectively they would have needed an extra tool, the simple but revolutionary spear thrower, or atlatl, which enables a man to hurl his weapon from a relatively safe distance, yet with enough force to penetrate the tough hide of a mammoth."⁴

Whether the Clovis people possessed the spear thrower, however, remains speculative.⁵ Even so, there are various clues which have suggested to archaeologists that the Clovis people "did indeed have ways of minimizing the risks of mammoth hunting." Thus, for instance, virtually all theorized mammoth kill sites occur at locations where the nature of the ground is indicative of former ponds or streams. Hunters could have hidden in waiting until the mammoths came there to drink. In other cases the indication is that the hunters attacked animals that had bogged down in the marshy edges of a lake. Signs pointing to this procedure

¹ L. Barnett, *op. cit.*, p. 27.

² R. Claiborne, *The First Americans* (N. Y., 1973), pp. 37 ff.

³ *Ibid.*, p. 40.

⁴ *Ibid.*

⁵ *Ibid.*, p. 41.

have not only been found in North America but also at Torralba, Spain, where the earlier *Homo erectus* seems to have used this technique.¹

"Since mammoths, if they were anything like modern elephants, must have been intelligent beasts, they would not often have bogged down this way accidentally. It is fairly safe to assume that the hunters had worked out techniques of stampeding the animals into the treacherous lake margin. At other sites, mammoths seem to have been stampeded into a steep-sided stream gully, where they would presumably have been either injured or at least hampered in their movement. And at one place the bones uncovered are all from baby or half-grown mammoths, suggesting that the hunters had managed to cut out these less dangerous—and doubtless more tender—individuals from the herd.

"Whatever Clovis man's techniques, he killed mammoths with considerable frequency; at least the bones turn up fairly consistently with his distinctively fashioned spear points."²

But that the above report seems somewhat exaggerated is evidenced by more recent considerations. As Canby reported in 1979:

"Most conspicuous [around 11,000 years ago] are the Clovis mammoth hunters, whose trademark of kill sites and fluted points boldly punctuates western North America...The points concentrate along major river systems, a pattern paralleling that of hundreds of mammoth- and mastodon-skeleton discoveries. Yet except for [an undisputed] kill site on Washington's Olympic Peninsula and another in Missouri, evidence does not link man with mastodon north of central Mexico. North American hunters seem to have shied away from the burly beasts."³

In fact, many of the supposed mammoth kill sites are so controversial that, as Jared Diamond reported: "Many paleontologists don't blame the spasm of extinction on Clovis hunters, because there's no [or very little] surviving evidence of mass slaughter—*only the fossilized bones of a few butchered carcasses here and there.*"⁴ And, as noted above, evidence of butchery is not necessarily proof of a kill. Besides, since the African elephant did not become extinct during a much longer span of time during which it was hunted by various tribes, why would the mammoth, to say nothing of the mastodon, have succumbed to man in a much shorter duration?

The case, of course, is entirely different when it comes to other animals which ancient man *did* slaughter *en masse*. Ice Age man may have derived the idea from hunting ibex in the

¹ *Ibid.*

² *Ibid.*, p. 44.

³ T. Y. Canby, *op. cit.*, p. 359 (emphasis added).

⁴ J. Diamond, "The American Blitzkrieg: A Mammoth Undertaking," *Discover* (June 1987), p. 84 (emphasis added).

rocky gorges of Siberia. In trying to escape, the ibex would have easily leaped across gaps, but, sometimes, some would miscalculate and fall to their deaths in the crags below. This might have led to the Cro-Magnons inducing ibex to leap across such gaps and, eventually, even into driving herds of ibex over the edge of a cliff. The discovery of a multitude of shattered ibex bones at the bottoms of narrow gorges supplies good evidence in favor of this hunting method.¹

In time the above routine was also used in hunting wild horses.² Driving the horses up a slope to a cliff, Cro-Magnon man would have kept them in line with bonfires lit along a narrow corridor and perhaps with flaming torches in their hands. Urging them ever forward in a wild stampede, the terrified animals, unable to stop because of the press from behind, would have been left with no recourse but to leap to their death over the edge.³

"Of these [Cro-Magnon] communities, one of the most interesting was a huge outdoor hunting station near Solutré in France where the bones of an estimated 100,000 horses were found, along with those of other animals. Scientific study of this vast boneyard suggests that disciplined companies of Cro-Magnon hunters convened in the area, summer after summer, for organized 'drives' on wild horses..."⁴

Ibex and horses were not the only herd animals that were slaughtered *en masse* by ancient man at the close of the Ice Age. In North America, bison suffered a similar fate. Here the Clovis people were followed by Folsom man, named after Folsom, New Mexico, near which his distinctive weapons, different from those of the Clovis, were first discovered. While Folsom spear points were somewhat smaller in size, the flutings in which the shaft was embedded extended almost the full length of the blade giving the haft a better grip when lashed to the point. Folsom man, however, was soon replaced by a group who used entirely unfluted spear points. These became known to archaeologists as the Plano hunters. By this time—in fact by Folsom time—the North American mammoth, as well as its near cousin, the mastodon, had already become extinct. Claiborne phrased it eloquently when he stated that the mammoth's place as preferred game "had been taken by the American animal that from [then] on would be the mainstay of the Plains Indians—the bison."⁵ Or, as Jared Diamond put it: "There may be a simple explanation for why Folsom hunters switched from mammoths to bison: there weren't any mammoths left."⁶

One of the techniques developed by Folsom man in hunting was "the stampeding of bison to their death over a cliff or the lip of a gully."⁷ Whether this procedure was introduced from Europe, where it had been used much earlier by the Cro-Magnons to slaughter vast herds of horses, or whether Folsom hunters developed the technique independently is not known. Evi-

¹ J. Wolf, *op. cit.*, pp. 122-123.

² *Ibid.*, p. 123.

³ L. Barnett, *op. cit.*, pp. 26-27.

⁴ *Ibid.*

⁵ R. Claiborne, *op. cit.*, p. 48.

⁶ J. Diamond, *loc. cit.*

⁷ R. Claiborne, *op. cit.*, p. 49.



The jump cliffs at Head-Smashed-In, Alberta, Canada.

dence for this method as used by Folsom man comes from a kill site near Kit Carson, Colorado, where, about 10,000 years ago, hunters had driven a herd of bison into a natural pitfall at the end of an arroyo.¹

"The bison hunted by Folsom man was primarily *Bison antiquus*, a long-horned beast that stood six feet high at the shoulder and weighed a ton. The chief prey of the later Plano people was the somewhat smaller *Bison occidentalis* and the still smaller modern species *Bison bison*, the animal commonly called the buffalo."²

One of the, if not the, most famous buffalo kill site is what is known as Head-Smashed-In Buffalo Jump, approximately 67 kilometers west of Lethbridge, Alberta, Canada. Proclaimed a UNESCO World Heritage Site, the area has been converted into an

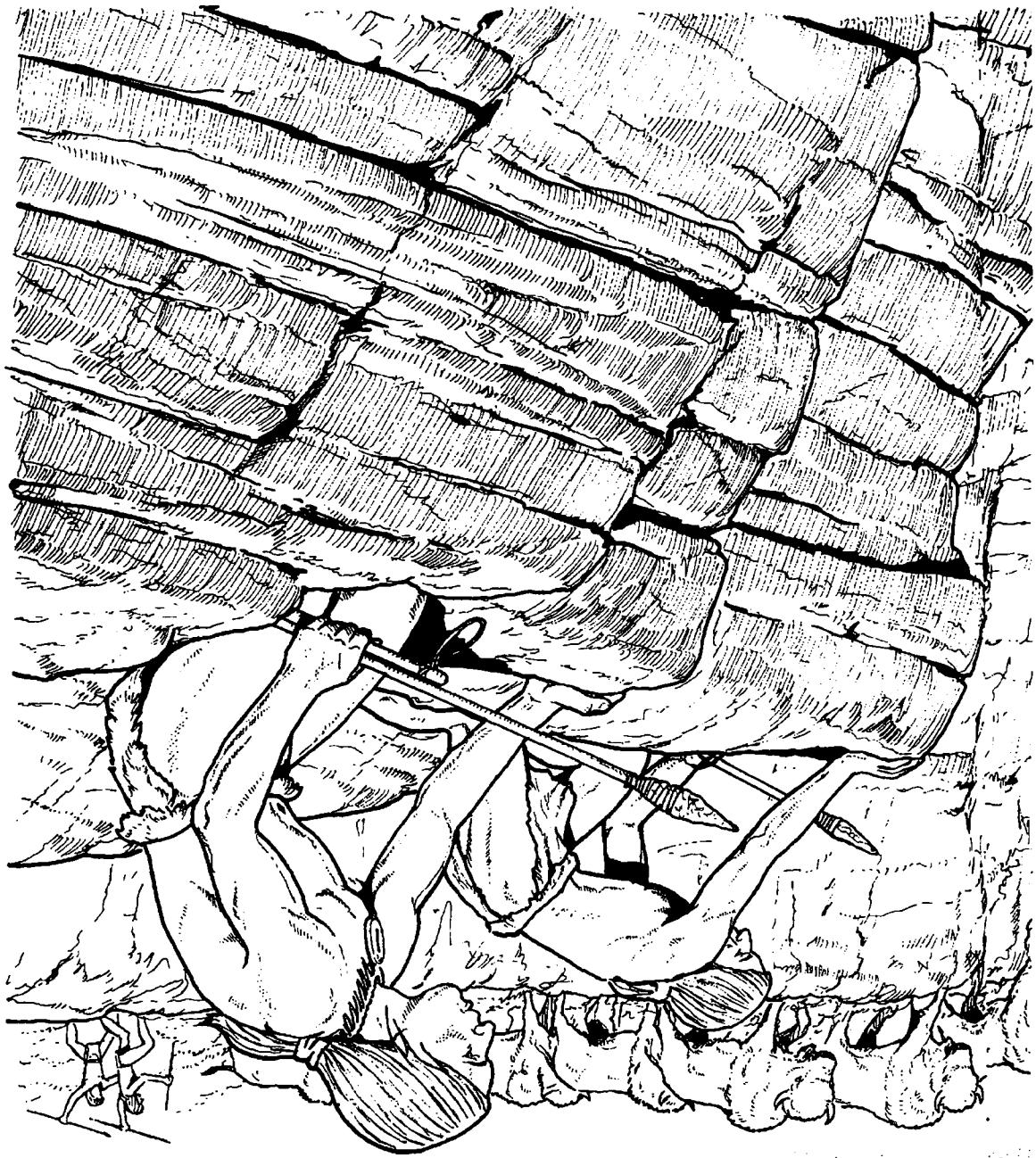
¹ *Ibid.*; see also, J. A. Maxwell, *et al.*, *America's Fascinating Indian Heritage* (N. Y., 1978), pp. 22-24; J. L. Gardner, *et al.*, *Mysteries of the Ancient Americas* (N. Y., 1986), p. 90.

² R. Claiborne, *loc. cit.*.



The buffalo jump.

(Illustration(s) by John Green.)



open-air display including an indoors Interpretive centre. The area, where the foothills of the Rocky Mountains meet the great plains, consists of the remains of marked trails and an aboriginal camp together with a tumulus in which vast quantities of buffalo skeletons are still mute evidence of repeated slaughters. Through the utilization of their topographical knowledge, together with that of buffalo behavior, ancestors of the Amerinds stampeded the beasts across the Porcupine Hills and over a ten-meter-high cliff at the bottom of which the carcasses were later butchered.¹ Studies of the archaeological site indicate that the site had been used for this purpose for close to 6,000 years until as recently as 150 years ago.²

(For the curious: The name “Head-Smashed-In” derives from the legendary tale of a brave who climbed part way up the cliff in order to obtain a better view of the buffalo herd cascading to its death. Unfortunately, on that particular day, the herd was more numerous than usual, and he ended up being swept over by the stampeding beasts. When his body was recovered at the bottom of the precipice—you’ve guessed it—his head was smashed in.)

Outside of Canada, this very method persisted among the Plains Indians into historic times. Although it has been stated that “no advancing white settler ever actually witnessed a ‘buffalo jump’,”³ this is disproved by the report of Lewis and Clark who witnessed such an event in 1805.⁴

These mass slaughters have been used as case histories in an effort to implicate man in the extinction of Pleistocene fauna. “The experts argue that the development of such mass slaughter methods as the jump hunt, which destroyed many more animals than could be used, may well have reduced to zero the chances of a species coming back from the brink of extinction.”⁵ What these mass slaughters really prove, however, is exactly the opposite. The horse was slaughtered *en masse* in Europe. It did not there become extinct. Instead, it became extinct in North America, where it once thrived, even though it is not known that it was hunted there. Nor can it be said that climate and the changed environment it would have brought about would have caused the North American horse to disappear because, when the Spaniards re-introduced this beast to the continent, it did not find the climate or the environment unsuitable to its survival. On the contrary, the descendants of escaped Spanish horses thrived in hundreds of thousands across the North American plains, were captured in quantity by the Plains Indians who became the super horsemen known to history, and continue to thrive to the present. On the other hand, despite the jump hunts, the bison endured in North America. Fair enough, *Bison antiquus* and *Bison occidentalis* are no longer with us. But *Bison bison*, the modern buffalo, which was hunted for far longer than the other two, survived the slaughter.

“...while the mammoth, the long-horned bison and other large and gregarious game animals vanished, still others almost equally large and no less gregarious survived, including the modern bison, which was hunted by the jump method in Paleo times

¹ <http://whc.unesco.org/sites/158.htm> & <http://www.head-smashed-in.com/home.html>

² D. Welch & M. Payne, “Head-Smashed-In Buffalo Jump,” *Canadian Encyclopedia* (1998).

³ J. L. Gardner, *et al.*, *loc. cit.*

⁴ R. Claiborne, *loc. cit.*

⁵ *Ibid.*, p. 52.

and was still being hunted by the same method in the 19th century. In fact, the bison survived in the millions even after its Indian hunters [riding on horseback] acquired firearms. The animals became virtually extinct only in the last [i.e. the 19th] century when bands of white hunters deliberately set out to destroy them as a means of exterminating the Indians by reducing their food supply and starving them to death.”¹

“The herds were thinning out as early as 1854, but the problem increased a decade later when Europeans slaughtered buffalo by the thousands...Hunters using large-bore rifles that could load and fire eight times a minute camped by water holes and rivers where buffalo congregated, lit huge fires so that they could see their prey, and hunted around the clock.”²

According to a Kiowa woman named Old Lady Horse, as many as a hundred buffalo a day were shot.³ But even then the buffalo survived—as it does until this day.

THE FATE OF THE OVERKILL THEORY

The overkill theory has had as many opponents as it has had adherents. Thus in 1979 Thomas Canby could still write that: “Preying on lumbering mammoths, bison, and camels, on fleet horses and sluggish ground sloths, [Ice Age hunters] killed so efficiently that their depredations may have caused the extinction of the creatures they stalked.”⁴ And yet, even he felt bound to ask: “Did the sudden flowering of Paleo-Indian hunters bring about the extinctions?”⁵ And, by way of a reply, he could only state that: “The question stirs almost as much controversy as that of early man himself.”⁶ Like Claiborne before him, he presents the idea of those who believe the extinctions were due to shifting climatic shock waves, but it is evident that he himself favored the overkill theory as propounded by the likes of José Cruxent and Paul Martin.⁷

The controversy continued into the 1980s. The evidence for overkill, as it was still seen by some, seemed to be an open book: “When the first Americans arrived, toward the end of the last ice age, they found North America teeming with big mammals that are now extinct.”⁸ As the caption to one of the pictures illustrating an article by Jared Diamond states: “When the Clovis people emerged from the glacial north, they saw before them the Great Plains, empty of people but teeming with mammoths.”⁹ It is not surprising that this led to the conclusion that these “immigrating humans apparently waged a war in which these animals

¹ *Ibid.*, p. 53 (emphasis added).

² J. J. Cassidy, Jr. & A. P. Rutherford (Editors), *Through Indian Eyes* (Montreal, 1996), p. 317.

³ *Ibid.*

⁴ T. Y. Canby, *op. cit.*, p. 330.

⁵ *Ibid.*, p. 363.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ J. Diamond, *op. cit.*, p. 82.

⁹ *Ibid.*, p. 83.

were quickly exterminated—possibly within just ten years at any given site.”¹ But even Diamond had to admit that: “Many paleontologists don’t blame the spasm of extinction on Clovis hunters, because there’s no surviving evidence of mass slaughter—only the fossilized bones of a few butchered carcasses here and there.”² While this last statement may be challenged, the alternative to overkill was still being sought in changes of climate. Diamond himself could not quite accept that option. “That reasoning puzzles me for several reasons,” he wrote. “[I]ce-free habitats for mammals expanded rather than contracted as glaciers yielded to grass and forest; big American mammals had already survived the ends of many glaciations without such an extinction spasm; and there were far fewer extinctions in Europe and Asia when the glaciers of those continents melted at around the same time.”³ But, like others before him, he, too, registered doubt concerning the overkill theory. As he asked: “[H]ow could these hunters pursue millions of big mammals with such relentless efficiency that not a single individual survived, but nevertheless leave little fossil evidence of their hunts?”⁴

By the end of the 1980s, no consensus had been reached. Although cosmic catastrophes, mainly in the nature of asteroidal or cometary impacts, were by then being introduced into the subject of extinctions, changing climate and human overkill were still vying for recognition as the prime cause for the major extinctions that took place at the end of the Pleistocene Ice Age.⁵

By the early 2000s, environmentalists began to embrace and combine both theories. Thus Yoshinori Yasuda could write that, toward the end of the long Ice Age, “the temperature was changing to that of the milder post-glacial age.”⁶

“With the climatic increase in temperature and humidity, the plains on which the great mammals such as the woolly mammoths, bison, and horses lived shrank, and the forests of deciduous oak and pines expanded. As their living environment worsened, great mammals declined in number. This was spurred on by human over-hunting.”⁷

It then became obvious, however, that both the climate and overkill theory were in trouble. Alan Cooper, who was once an advocate of the overkill theory, but who later jumped on the climatic band wagon, ended up doubting both. “On the one hand, it looks like humans didn’t carry out the slaughter we thought they had,” he concluded. “On the other hand, climate changes seem to cause problems much earlier than anyone thought.”⁸

At bottom lies this quandary: “Those who hold man guilty of destroying the game by prehistoric overkill do not think that climatic changes alone can satisfactorily account for the extinctions.”⁹ But: “Those who would exonerate the ancient big-game hunters, on the other

¹ *Ibid.*, p. 82.

² *Ibid.*, p. 84.

³ *Ibid.*

⁴ *Ibid.*

⁵ R. Gore, “Extinctions,” *National Geographic* (June 1989), p. 695.

⁶ Y. Yasuda, “Forest and Civilisations,” in Y. Yasuda (Ed.), *Forest and Civilisations* (New Delhi, 2001), p. 172.

⁷ *Ibid.*, pp. 172-173.

⁸ J. Kahn, *op. cit.*, p. 59.

⁹ R. Claiborne, *op. cit.*, p. 52.

hand, point out that similar...extinctions had occurred among North American mammals long before the arrival of man.”¹

And then, a study of mammoth tooth enamel conducted by Kathryn Hoppe showed beyond a doubt that, at three different American Clovis sites, “the teeth contained a wide variety of isotope ratios consistent with long-term changes in local vegetation and diet.” Similar variations showed up at mammoth sites which lacked the presence of man. Only at one site, where mammoths have been theorized to have drowned *en masse*, was it found that the isotope ratios “did not vary much.” What this indicates is that “the mammoths at Clovis sites were unrelated animals killed individually over a long period, so the hunters probably did not hasten the animal’s extinction.”² As the mammoth expert Adrian Lister stated:

“One of the problems with the ‘overkill’ theory has always been that it is difficult to test. The isotope work is an ingenious approach. Mass killing now seems improbable.”³

As Claiborne, however, noted: “In a few cases, such as the mammoth, the hunters may have given the *coup de grâce* to a species that, *for reasons still obscure*, was already on nature’s engendered list.”⁴

What these “obscure” reasons might have been we have already learned. But let us take it a bit further.

A CHANGE OF BAND WAGONS

What should be stressed is that we are not dealing merely with the extinction of mammoths, horses, and bison. Derek Ager did not hyperbolize the situation when he claimed that:

“We cannot demonstrate anything really comparable to the sudden mass extinctions of the past happening at the present day...What is more, we cannot even see the process going on today that might lead to such extinctions. I feel that we rely too much on the present state of affairs, too much on uniformitarianism, when interpreting the fossil record, especially in those groups that are now completely extinct or but a shadow of their former selves. It may be said of many palaeontologists, as Professor Hugh Trevor-Roper said recently of 18th century historians: ‘Their most serious error was to measure the past by the present’.”⁵

In time an alternative vehicle became fashionable in place of the climatic and overkill band wagons. Even the Nobel laureate Harold C. Urey has “come out strongly in support of

¹ *Ibid.*

² “Ancient Hunters Let Off the Hook Over Mammoths’ Demise,” *New scientist* (March 27, 2004), p. 16.

³ *Ibid.*

⁴ R. Claiborne, *op. cit.*, pp. 52-53 (emphasis added.)

⁵ D. V. Ager, *op. cit.*, p. 26.

extra-terrestrial causes for mass extinctions.”¹ Rare collisions between Earth and comets, according to Urey, “would have been sufficient to heat up considerably both the atmosphere and the surface layers of the oceans,” and this “could have had a disastrous effect on both land and marine faunas.”² Even *Nature*, that paragon of uniformitarianism, ran an article by Michael Benton to that effect. As he there wrote:

“New analyses suggest that the classical view, that some groups die out simply because they become ‘out of date’ and are replaced by their more efficient competitors over long periods of time, is not an adequate explanation. There is increasing evidence that major physical changes have caused more large-scale evolutionary changes than has competition.”³

The traditional “competitive” explanations for the major extinctions of the past, Benton went on, “have been questioned by a closer study of the fossil record.” Although he did not entirely exclude some degree of competition in the survival of species and the demise of others, his conclusion was that rivalry “will rarely be the sole cause, whereas it could be postulated that *a catastrophic change in the physical environment is sufficient on its own.*”⁴

But even then, as with the climatic and overkill theories, it cannot be said that extinctions through cosmic catastrophism was embraced by one and all. Writing in the same *Nature* in 1984, the geologist Tony Hallam was bold enough to state that “catastrophists such as Cuvier were the true empiricists of the day, interpreting the stratigraphic record as it appeared, for instance in the abruptly changing succession of fossil faunas, *and that Lyell* [with his uniformitarian concept] *introduced confusion into the argument..*”⁵ And yet he could still point out that “serious doubts and difficulties persist about extraterrestrially-induced catastrophes, especially as a *general* explanation for mass extinctions.”⁶ One thing he was confident enough to claim was that:

“Lyell accused his catastrophist opponents of trying to cut, rather than patiently unravel, the Gordian Knot. He would no doubt shake his head sadly at those modern catastrophists who favor a quick fix for a long-standing problem.”⁷

Lyell may well have been shaking his head, but, as time went by, Cuvier, who could be called his greatest opponent, began to regain the ground he lost. After all, as Stephen Gould himself declared, “Charles Lyell was trained as a lawyer, and his book is more a brief for gradualism than an impartial account of evidence.”⁸ On the other hand, according to the same

¹ *Ibid.*

² *Ibid.*

³ M. J. Benton, “Large-Scale Replacements in the History of Life,” *Nature* (March 3, 1983), pp. 16-17.

⁴ *Ibid.* (emphasis added).

⁵ T. Palmer, “Nemesis for Evolutionary Gradualism?” *Chronology and Catastrophism Review*, X (1988), p. 61 (emphasis added).

⁶ *Ibid.* (emphasis as given).

⁷ *Ibid.*

⁸ S. J. Gould, “An Asteroid to Die For,” *Discover* (October 1989), p. 62.

Gould, Georges Cuvier “was a rationalist and a chief figure of the Enlightenment, not an antediluvian theological apologist.”¹

“Cuvier did not use catastrophism to argue for a young Earth; rather, his superb geologic work helped to establish Earth’s great antiquity. He did not invoke worldwide paroxysms as divine and miraculous, but as natural events proved by copious geologic evidence. Yet Lyell’s rhetoric prevailed, and catastrophism was cast out beyond the pale of science.”²

Nor were Gould and Urey the only world authorities who began to favor catastrophism. Richard Leakey, the able son of the more famous Louis Leakey, was of the same opinion as the book he co-authored with Roger Lewin makes clear. As far as these two writers were concerned, the idea that extinctions may be caused through extraterrestrial events “is truly compelling.” As they made clear, they were forced “to leave behind” what they termed the “Darwinian world” and accept that extinctions represent the hapless victims “of a fickle universe.”³ As they conclude:

“Gone is an image of the flow of life as smooth and predictable...its replacement is a world that is erratic and unpredictable...*Catastrophism is back with us, and it is real.*”⁴

One problem that was difficult to overcome is that, quite often, the evidence of the fossil record appears to indicate a gradual transition. But this, it has been found out, is nothing but an illusion. As it was ultimately discovered, “it is highly improbable that fossils will ever yield a true picture of extinction, even when extinction is sudden.”⁵

“Various tests showed that even in cases where an extinction was known to be abrupt for many species, imperfections in the fossil record made it look gradual. The concept that a sudden extinction will always look gradual—that it will leave a record that suggests the fossils disappeared before the actual sudden extinction horizon—is now called the Signor-Lipps effect after Professor Phil Signor and Jere Lipps of the University of California.”⁶

Others have argued that although, cometary or asteroidal impacts would be devastating, “these direct effects are not enough to explain by themselves mass extinction and world-wide geological activity.”⁷

¹ *Ibid.*

² *Ibid.*

³ R. Leakey & R. Lewin, *The Sixth Extinction* (N. Y., 1995), p. 229.

⁴ *Ibid.* (emphasis added).

⁵ P. D. Ward, *The Call of Distant Mammoths* (N. Y., 1997), p. 170 (emphasis added).

⁶ *Ibid.*, pp. 170-171.

⁷ F. Barbiero, “Changes in the Roatation Axis of Earth After Asteroid/Cometary Impacts and Their Geological Effects,” *Fifty Years After Worlds in Collision by Velikovsky: Classical and New Scenarios of the Evolution of the Solar System* (Bergamo, 2002), p. 86.

John Alroy went even further. Examining the size and ages of major craters in North America and comparing them with the fossil record, he could find no correlation between impact size and the rate of extinction.¹

"[Alroy] argues that life is far more tenacious than some scientists make it out to be. Furthermore, mass extinctions are very unusual, he says, and are rarely caused by a single catastrophic event."²

But that extinctions, as Alroy reasoned, "are much more likely to result from slower, less dramatic processes such as species migration, climate change, competition, and disease"³ is not something with which we can concur. Besides, more was yet to come as the following report from the Earth Institute at Columbia University shows.

"Supporting the theory that catastrophic events significantly influence major Earth processes, researchers have determined that comet and meteorite impacts on Earth occurring over the last 4 billion years have directly correlated with the activity of strong and normal mantle plumes—heated mantle rock causing volcanic eruptions..."⁴

And:

"Another question raised by the correlation between impacts and volcanism concerns widely adopted theories that meteorite and comet impacts were the cause of mass extinctions of life on Earth. Was it the impact alone or could major episodes of mantle plume volcanism have contributed to these extinctions?"⁵

Impacts, however, would have been accompanied by more than just volcanism. A cosmic body falling into the ocean would also have spawned tsunamis that would radiate away from the body's crash site. "Initially more than 2,500 feet high," Pamela Gay reports "these waves abate to about 1,700 feet 40 miles from the point of impact."⁶ By comparison, a mere 30-foot-high tsunami that hit Papua, in New Guinea, in 1998, killed 2,100 people.⁷

Thus, by 2003, the consensus was that impacts were responsible for closing the geological periods of Earth's past⁸—except, as was thought by some, when it came to the close of the Pleistocene epoch. The impact band wagon was not by these believed to be a convenient vehicle. As Jennifer Kahn reported: "Unlike the meteor that hastened the demise of dinosaurs 65 million years ago, the North American megafaunal extinction [at the end of the Ice Age]

¹ R. M. Gorman, "Extinction Trends: No Need to Fear the Asteroids?" *Discover* (February 2003), p. 11.

² *Ibid.*

³ *Ibid.*

⁴ <http://www.earthinstitute.columbia.edu/news/2003/story01-17-03.html>

⁵ *Ibid.*

⁶ P. L. Gay, "Killer Asteroids Make Big Splash," *Astronomy* (February 2003), p. 28.

⁷ *Ibid.*

⁸ *Ibid.*

has not been linked to a single cataclysm.”¹ Yet, years before, Allan Kelly and Frank Dachille had already blamed the extinction of the mammoth, as well as other Pleistocene fauna, on a cosmic impact that they believe took place between 15,000 and 8,000 years ago.²

We are not, however, dealing with but *one* cosmic impact. Nor are we dealing with *just* cosmic impacts. As should by now have become apparent, impacts, even with concurrent tsunamis and world-wide volcanism, were not the *direct* cause behind the closing of Earth’s past geological periods. The closing of the Pleistocene epoch has here been ascribed to proto-Saturn’s flare-up. It was due to the proto-Saturnian system’s passage through the so-called Kuiper Belt that impacts would have been inevitable. As already noted, the number of craters that have been dated to this time are multitudinous. One is therefore bound to ask where it was that Kahn obtained her information from.

GEOLOGISTS JOIN IN

Paleontologists are not the only ones who finally decided to re-embrace cosmic catastrophism. Although not one and all, geologists were bound to do the same. Derek Ager, who made a special study of the world’s geological, especially its stratigraphical, record, was forced to conclude that “sooner or later, we must face the possibility of an extra-terrestrial cause, though in most geological circles one seems to be expected to blush when doing so.”³ Actually, a cosmic cause *had* been espoused by various geologists even before.

“Such hypotheses have been postulated by highly reputable geologists when no other possible cause can be found to explain certain phenomena [Ager went on]. I make no apology for joining a distinguished band of predecessors. Changes, cyclic or otherwise, *within the solar system or within our galaxy*, would seem to be the easy and incontrovertible solution for everything that I have found remarkable in the stratigraphical record.”⁴

Like others before him and since, including the present writer, Ager did not discount the effects of sea-floor spreading and plate tectonics,⁵ even though he did question some of the theory’s adamant details.⁶ Even though he was mostly discussing eras *prior* to the Pleistocene he realized that:

“There is no evident explanation to be found in drifting continents or colliding plates. It seems that here, at least, we must appeal to an extra-terrestrial cause.”⁷

¹ J. Kahn, *op. cit.*, p. 55.

² J. S. Lewis, *Rain of Iron and Ice* (N. Y., 1996), p. 106.

³ D. V. Ager, *op. cit.*, p. 83.

⁴ *Ibid* (emphasis added).

⁵ *Ibid.*

⁶ *Ibid.*, pp. 6, 10, 25, 82, 98

⁷ *Ibid.*, p. 88.

Without advocating a particular cosmic agent, Ager came to the following general conclusion. "I am coming more and more to the view that the evolution of life," he wrote, "*like the evolution of continents and of the stratigraphical column in general*, has been a very episodic affair, with short 'happenings' interrupting long periods of nothing much in particular."¹ This not only expresses our own sentiment, but we can recognize one of Ager's short "happenings," as also one of the cosmic causes he sought, in proto-Saturn's flare-up.

A shift toward cosmic catastrophism definitely took place at the May 1983 Dahlem conference in which quite a few geologists took part. The April 19, 1984 issue of *Nature* devoted much of itself to this shift and the debates it caused. Despite some uncertainties and a lot of confusion, John Maddox could then actually state that the "intellectual climate has changed in favor of catastrophism."²

Another well-heard voice at the conference was that of David Raup.³ As he made quite clear four years later, Raup embarked on something of a crusade against the very concept of uniformitarianism. And he did so without employing castigation. Alluding to catastrophes as rare events, he offered the opinion that:

"All too often, rare events are ignored because so little is known about them. Theories based on rare events are often labeled 'untestable'...and this charge can be devastating to a new or unusual theory. The charge of untestability often has the effect of putting a new theory in company with the truly fantastic claims of the lunatic fringe."⁴

Or, as he put it in a different manner: "Catastrophic interpretations of features in Earth history are viewed as guilty until proved innocent."⁵

In company with the new breed of cosmic catastrophists, Raup did not altogether abrogate the principle of uniformitarianism. He, however, realized that recent discoveries had forced uniformitarianism to absorb "several important catastrophist elements" and that "geologists now use a blend of the two opposing views."⁶ The conclusion he eventually reached was that "scientists have traditionally erred by downplaying the role of rare, catastrophic events."⁷

Not long after Raup, Stephen Gould was echoing the same sentiments. Speaking of the above discussed shift in scientific attitude, which he called "monumental," Gould was bold enough to go where he would not have previously dared to venture. "Ideas advanced in the last decade are providing new and exciting knowledge," he wrote, "and in that sense, of course, they are progressive."⁸

¹ *Ibid.*, p. 93 (emphasis added).

² J. Maddox, *Nature* (April 19, 1984), p. 685.

³ See here D. M. Raup & J. J. Seposki, *Proceedings of the Natural Academy of Sciences* 81 (1984), pp. 801-805.

⁴ D. M. Raup, "Changing Views of Natural Catastrophe," *The Great Ideas Today* (Chicago, 1988), p. 59.

⁵ *Ibid.*, p. 72.

⁶ *Ibid.*

⁷ *Ibid.*, pp. 76-77.

⁸ S. J. Gould, *loc. cit.*

"But these ideas [Gould went on] are also, in a curious way, reactionary, because they have rescued, and made respectable again, the catastrophic worldview that Lyell had attacked by unfair argument. Gradualistic change has not been abolished and never shall be, because modes of change are many on our complex Earth, and some are genuinely slow and steady. But the hegemony of gradualism as the only scientifically acceptable style of change has been broken."¹

And the verdict? "Catastrophism, once denigrated as an antiquated argument of miracle-mongers, has become respectable again."²

By 1993, the prestigious Sir Fred Hoyle was not only advocating cosmic catastrophism, he even suggested it as a cause for the end of the Ice Age through a series of terrestrial impacts due to the break-up of a giant comet. He thus not only brought cosmic catastrophism down to the age of man, but even down into historical times through his association of cosmic events with such factors as the origin of metallurgy, the emergence of religions, and even the decline of the Roman Empire.³ In some instances he might have gone too far and, in any case, cosmic catastrophism through impacts is only a minor part of the story. If nothing else, however, he should be lauded for his boldness. As Benny Peiser reported in 1994:

"Since 1991, more than ten international conferences, dealing exclusively with cosmic disasters and impact hazards, have been organized world-wide. Dozens of astronomers around the globe are now involved in research projects, focusing on past, present and future cosmic catastrophes."⁴

Despite Hoyle, cosmic catastrophism during the time of man on Earth remained anathema. It is therefore worth quoting what Duncan Steel wrote in 1995:

"The real problem for science is [that] astronomers...became so entrenched and vehement in their criticisms of Velikovsky's astronomical nonsense that their mind also became instilled with not only a rejection of, but also a nonconsideration of, the possibility that the myths and records of past civilizations might contain important information about what was happening in the sky in pre-modern times. In fact, the similarity between the legends of disparate human cultures are startlingly similar. In scientific publications I have pointed out that Australian Aborigines and New Zealand Maoris have oral traditions of strange rocks falling from the sky, causing awful fires and many deaths, and this scenario is common in the myths of other peoples. On one hand astronomers have prided themselves in instructing geologists that impact catastrophes were responsible in part for shaping the planet, but on the other hand, they have been blind to the fact that they have made a uniformitarian assumption when it comes to their own science. That the sky as it is now, is as it ever

¹ *Ibid.*

² *Ibid.*

³ F. Hoyle, *The Origin of the Universe and the Origin of Religion* (London, 1993), *in toto*.

⁴ B. J. Peiser, "Was the Cambridge Conference a Flop?" *Chronology and Catastrophism Review XVI* (1994), p. 37.

was, at least while humans have walked the Earth. There is ample evidence not only from historical records of various forms, but also from the analysis of data from this century...that around 5,000 years ago the sky did not appear as quiescent as it does now, and that since that time there have been other disruptions of the heavens producing conflagrations here below.”¹

As we have seen, however, cosmic catastrophism is not only evident for events which transpired “around 5,000 years ago,” but even earlier around 10,000 years ago and, as we shall see in the last part of this very work, *earlier still*. As the title of his work well illustrates, Steel had asteroidal and cometary impacts in mind when he penned the above words and not something as drastic as the flare-up of a brown dwarf star.

There have been others, pursuing theories of their own, who could not look upon the ravages etched on Earth without assuming recent catastrophism. Although, as often noted in this work, we are completely at variance with Allan and Delair’s appropriated scenario, we are at least in agreement with the latter when he states that: “If these ‘abnormalities’ are genuine catastrophic scars, then the culprit cataclysm must have been immense and far greater than the natural catastrophes (floods, eruptions, earthquakes, droughts, etc.) accepted by uniformitarianism.”² Yet even then Delair could rightly exult at the change in attitude which, by 1997, was becoming all the more apparent. “Apart from isolated and largely unheeded exceptions down the years,” he wrote, “only very recently have Earth scientists begun to seriously champion the reality and importance of global catastrophes in the terrestrial record or hold conferences specifically to discuss such scenarios.”³

Closer in keeping with our own scheme, the idea that another star passing by the Solar System, disrupting the Sun’s family of planets, causing terrestrial bombardment, with ensuing extinctions, was by 1999 seriously considered. Planetary billiards *à la* Velikovsky had become respectable.⁴

RADIATION EXPOSURE

We must now return to extinctions—and I beg the reader to bear with me a while longer on this particular subject. But one thing we wish to stress at this point is the *utter devastation* of this event. This is amply evidenced by the fossil record which, as Loren Eiseley rightly noted, drives the biologist to despair.⁵ Frank Hibben was not exaggerating when he claimed that the Pleistocene epoch “ended in death.”⁶ “This is no ordinary extinction of a vague geo-

¹ D. Steel, *Rogue Asteroids and Doomsday Comets* (N. Y., 1995), pp. 155-156.

² J. B. Delair, “Planet In Crisis: The Earth’s Last 12,000 Years,” *Chronology & Catastrophism Review* (1997:2), p. 6.

³ *Ibid.*

⁴ See here *New Scientist* (June 12, 1999), p. 17; *Sunday Times* (July 25, 1999); *Sunday Telegraph* (October 10, 1999), p. 19.

⁵ L. C. Eiseley, *American Anthropologist* XLVIII (1946), p. 54.

⁶ F. C. Hibben, *The Lost Americans* (N. Y., 1946), p. 168.

logical period which fizzled to an uncertain end," he wrote. "This death was catastrophic and all inclusive."¹ As he went on:

"The large animals that have given their name to the period became extinct. Their death marked the end of an era...In this particular case, the death was of such colossal proportions as to be too staggering to contemplate...The 'corpus delecti' of the deceased...may be found almost everywhere...Their bones lie bleaching on the sands of Florida and in the gravels of New Jersey. They weather out of the dry terraces of Texas and protrude from the sticky ooze of the tar pits of Wilshire Boulevard in Los Angeles. Thousands of these remains have been encountered in Mexico and even in South America. The bodies lie as articulated skeletons revealed by dust storms, or as isolated bone fragments in ditches or canals. The bodies of the victims are everywhere in evidence."²

And:

"It might at first appear that these great animals died a natural death; that is, the remains that we find in the Pleistocene strata over the continent represent the normal death that ends the ordinary life cycle. However, where we can study these animals in some detail such as in the great bone pits of Nebraska, we find literally thousands of these remains together. The young die with the old, foal with dam and calf with cow. Whole herds of animals were apparently killed together, overcome by some common power."³

It can therefore be seen that the calamity which caused this mass extermination of species was much too severe to be attributed to one particular single cause, be it a change of climate, over-hunting, disease, volcanism, impacts, tsunamis, floods, and earthquake. David Raup was right on target when he stated his conviction that "once freed from the conventional view that extinction is a gradual, impossibly complex process, we will find other mechanisms as good as, or better than, the impact of comets and asteroids."⁴ If, however, impacts had been acting in concert with the above listed calamities incurred through proto-Saturn's flare-up, the picture becomes much clearer. But there is even more.

When Karin Sandstrom, at the time an astronomy student at Harvard, suggested that the two-star system known as HR 8210 could easily spawn a supernova, the red flag started waving. Believed to be uncomfortably close to us, although not exactly in our back yard, the energy this supernova could release was believed to be able to "ruin a neighborhood much larger than 150 light years across."⁵

¹ *Ibid.*

² *Ibid.*, pp. 168-169.

³ *Ibid.*

⁴ D. Raup, "Extinction: Bad Genes or Bad Luck," *New Scientist* (September 14, 1991), pp. 46-49.

⁵ T. Lougheed, "Dying Star a Threat to Life on Earth, Researcher Says," *The Vancouver Sun* (May 24, 2002), p. A11.

"The outgoing wave of electromagnetic energy and cosmic rays could destroy Earth's ozone layer in a matter of minutes, exposing all life on the planet to lethal levels of radiation."¹

Actually, the belief that far-distant supernovae could have played a part in the extinction of terrestrial life was, even then, not new. On the contrary, the notion that cosmic radiation went hand in glove with the geological discontinuities and biological revolutions had been discussed for years before.² Among adherents of the theory was the German palaeontologist, Otto Schindewolf, who stressed the need for Earth scientists to realize that faunal discontinuities at the boundaries of geological periods cry out for a catastrophic agent which would have included a sudden increase in high energy cosmic radiation.³ And this radiation, according to Schindewolf, could only have come from a nearby supernova.⁴ "The same view," wrote Trevor Palmer, "was taken by the Soviet scientists, V. I. Krasovskiy and I. S. Shklovskiy, in 1957; the German, H. Liniger, in 1961; and the Canadians, D. A. Russell and W. Tucker, in 1971."⁵

While, as often stressed in this work, proto-Saturn's flare-up was but a burp when compared to the colossally explosive nature of supernovae, there is no doubt that it, too, would have showered Earth with X-rays and other harmful radiation.

Man, himself a victim of the cataclysm, would have noticed the loss of life around him. Among those who kept the memory alive were the Amerinds.⁶ But they were not alone. As Donald Mackenzie informed his readers: "The American belief that the first beings who were created were unable to live on earth was shared by the Babylonians."⁷

Of radiation and its effects, these people would have known nothing. And yet the Babylonians of whom Mackenzie speaks seem to have remembered what only their ancestors could have passed on to them. The dim recollection which these people preserved was that the death of so many of the animals which took place right after the Creation had been caused by the light emitted by the radiating proto-Saturnian sun. At least this seems to be what Berossus had in mind when he described Belus (the same as Bel, and therefore Saturn) as he who "split the darkness" and "put the world in order." But, as he went on, "the animals that could not bear the light perished."⁸

¹ *Ibid.*

² See here, for instance, L. J. Salop in *Catastrophist Geology* 2:2 (1977).

³ O. Schindewolf (translated by V. A. Firsoff), in *ibid.*

⁴ T. Palmer, *Catastrophism, Neocatastrophism and Evolution* (Nottingham, 1992), p. 31, where other references are cited.

⁵ *Ibid.*

⁶ D. A. Mackenzie, *Myths of Babylonia and Assyria* (London, 1915), republished as *Mythology of the Babylonian People* (London, 1996), p. 198.

⁷ *Ibid.*

⁸ *Ibid.*; G. Rawlinson, *The Seven Great Monarchies of the Ancient Eastern World*, Vol. I (N. Y., 1885), p. 93 (emphasis added).

ABORTED MUTATIONS

Cosmic radiation would not only have proved fatal to a vast majority of individuals, it would also have led to mutations among some of the survivors. It has for long been known that spontaneous mutations can be produced by high-energy radiation, including X-rays and ultra-violet rays.¹ Objections raised against such a cause in the natural world centered around the fact that X-rays are practically absent in Earth's atmospheric environment, while excessive ultra-violet rays are mostly shielded by Earth's ozone layer.² But, as we have seen, brown dwarf stars, of which proto-Saturn was one, are known to emit just such radiation. In a flare-up such as the one being discussed, the radiation output of a brown dwarf star would have been copiously increased.

Thermal agitation can also cause similar effects. Thus, for instance, in 1943, strange plants which were previously "unknown to modern British botany" were discovered in the World War II bomb craters of London.³ The thermal action of the explosions is believed to have been the cause of this botanical metamorphosis, which is not dissimilar to the spontaneous mutations achieved in insects by subjecting them to X-ray doses.⁴

It is even possible, although not yet proven, that, as Anthony Huxley suggested, mutations could be caused by the close passage of a radioactive meteorite. Possible evidence of this exists in a number of deformed beech trees which were found in areas across Denmark, Germany, northern France, and Brittany. They are all of about the same age and the localities in which they continue to exist lie in a straight line.⁵

Mutations in plants have also cropped up close to the atomic bomb explosion site in Nagasaki.⁶ The same thing transpired from the effects of radioactive fallout from the Chernobyl Nuclear Power Plant disaster in April, 1986, in what was then the U.S.S.R., where mutations took hold of the vegetation on the edge of the nearby forest. Pine trees grew needles ten times as long as normal, while oak and acacia trees sprouted enormous leaves.⁷

Back in 1939, Fred Hoyle had suggested that collisions with cosmic clouds may occasionally obliterate the Sun's heliospheric shield. Computer simulations conducted sixty years later by Gary Zank indicated that such collisions may indeed "burst" the Sun's plasmatic "breathing bubble" that helps protect life on Earth. In such cases, according to Zank: "The protective solar wind would be extinguished, and cosmic radiation might lead to gene mutations."⁸ If such a collision with a cosmic cloud is believed capable of achieving this, how much more so would a collision with an interloping system, itself contained in its own plasmatic "breathing bubble"?

¹ C. Sagan, *Cosmos* (N. Y., 1983), p. 35; H. J. Muller, "The Works of the Genes," in C. G. Little, *et al.*, *Genetics, Medicine and Man* (N. Y., 1947), p. 27.

² *Ibid.*

³ "Botany," 1944 *Britannica Book of the Year*, p. 117.

⁴ H. J. Muller, *loc. cit.*

⁵ A. Huxley, *Plant and Planet* (London, 1974), p. 10.

⁶ *New Scientist* (June 20, 1985), p. 9.

⁷ *Ibid.* (September 16, 1989), p. 23.

⁸ A. Yee, "Sir Fred Hoyle Vindicated After 60 Years," *SIS Internet Digest* (1998:2), p. 12.

But would the penetration of the heliosphere by the proto-Saturnian system have “burst” the Sun’s plasmatic bubble, even if only temporarily? Would it not be more reasonable to assume that it was the proto-Saturnian system’s own plasmasphere that would have been so affected? I will leave that for others in the future to decide. At present I can only say that the temporary obliteration of either plasmasphere is not a requirement of our scenario, although there is no doubt that the exchange of electrical charge between the two would have caused a temporary disturbance in their electric fields. As we have seen, in the proto-Saturnian case this disturbance exhibited itself in proto-Saturn’s own flare-up. What temporary damage, if any, this might have caused in the Sun’s outlying plasmasphere remains to be told. In any case, as is now known, biological cells do respond to electromagnetic fields. Moreover, cells can “rewrite” their own gene program in order to overcome stressful conditions. Such DNA alterations are actually mutations.¹ To say that proto-Saturn’s flare-up inaugurated a “stressful condition” would be an understatement.

As in the case of extinctions, mutations in Earth’s past organisms have also been linked to supernovae. Radiation, Bob Berman writes, “would pummel Earth if a supernova exploded nearby, within 30 light-years or so.” Supernovae occurring this close to Earth are considered rare, but, when they do, the radiation they emit is believed capable of triggering mutations in all forms of terrestrial life.² Although he does not seem to have quite accepted such an event, Palmer at least realized that: “If increased radiation had been present, e.g. because of a supernova explosion, then there might well have been an increased incidence of mutations.”³

Increased radiation, X-rays, ultra-violet ray emissions, thermal agitation, plasmaspheric disruption, electromagnetic disturbance—all these, among others, were the consequences of proto-Saturn’s flare-up. On their own, every single one of them is capable of causing mutations in living organisms. Acting in concert, they would have increased the possibility of such mutations. It is therefore unreasonable to suppose that mutations did not affect life on Earth in response to the event in question.

Although it has long been conceded by some authorities that mutations are “the raw material of evolution,”⁴ I will let that still controversial subject pass especially since no new species are known to have appeared at the end of the Pleistocene epoch—certainly not in the animal kingdom. But the question has to be asked: If mutations resulted in the wake of proto-Saturn’s flare-up, where do we look for the evidence?

Well, for one thing, most mutations are lethal, leading to the death of the affected organism. Moreover, among those entities who survive mutation, the newly acquired traits are seldom passed on to offspring. Only those alterations occurring in the hereditary genes can actually furnish new elements for the permanent character of a race or species.

It must, however, be stressed that, at least under normal conditions in the natural world, these gene-mutations are remarkably rare. This is because most mutant genes have a lower

¹ “Biology of the Cell,” in *ibid.* (2001:2), p. 11.

² B. Berman, “Things that go Bump in the Night,” *Discover* (October 2002), p. 30.

³ T. Palmer, *op. cit.*, pp. 103-104.

⁴ W. S. Laughlin, “Anthropology,” *Encyclopaedia Britannica* (1959 edition), Vol. 2, p. 55; B. Holmes, “Ready, Steady, Evolve,” *New Scientist* (September 28, 2002), p. 28.



White tiger—a mutant strain of the Bengal tiger.
(Photograph by the author.)

survival value. Fair enough, a few can produce effects which are about as equal in survival value as the original organism. But few, by far, end up inheriting survival values that are higher than that of the original. In the natural world, mutants are usually eliminated quite rapidly by natural selection—and, despite the vociferous objections by other catastrophists, natural selection *does* hold sway in normal conditions.

That mutated animals can breed and reproduce their mutated forms is exemplified by those magnificent beasts, the white tigers which have been made famous by the illusionists Siegfried and Roy in Las Vegas. The white tiger, a partial albino, developed as a mutant strain of the Bengal tiger. Up until 1951, only nine had been sighted in the jungles of India. At present, numerous white tigers continue to breed in international zoos as they continue to do in India.¹

As far as is known, Bengal tigers did not mutate into white tigers due to disastrous conditions. The same cannot be said for the voles of Chernobyl. Mutation rates due to radioactive fall-out from the disaster that befell the Chernobyl nuclear plant produced massive mutation

¹ See here, for instance, "Mini-Explosion in White Tiger Births," *National Geographic* (September 1989), *Geographica* section.

in the voles of the area. By 1995, these mutation rates had increased by 40 times normal. They were not expected to survive. But survive they did.¹

In most cases, however, mutational flaws are not passed on to offspring. This is well known through various birth defects which, while rare, occur in the animal kingdom. Animals born with two heads or more than four limbs might survive. Unfortunately, among the thousands of fossils so far unearthed, the remains of any such beasts would be difficult to recognize. Skeletons of animals with two heads, five limbs, or other deformities could easily be mistaken for the incomplete remains of two or more individuals. Moreover, these monstrosities would have given birth to normal individuals, which is why the fossil record remains silent on the issue. But, for a while following proto-Saturn's flare-up, these malformations would have probably been numerous enough for man to have noticed their existence among the surviving herds of normal animals. More than that, ancient man would have known enough to realize that these misshapen creatures constituted novel forms which had not previously existed.

CREATURES NEW AND STRANGE

That ancient man seems to have retained a memory of prehistoric animals the forms of which succumbed once the age of darkness came to an end is recorded by Berossus in a fragment preserved by Polyhistor where it is told that: "In the beginning, all was darkness and water, and therein were generated monstrous animals of strange and peculiar forms."² Among such animals might have been the woolly mammoth, the giant cave bear, the saber-toothed tiger, and the megatherium. Those who came later would have received reports of these wild beasts by word of mouth from those who had actually seen them. There was no other way in which late comers would have realized that such forms were no longer in existence. As with the intensity of the darkness itself, the nature of these beasts were later exaggerated, endowing some of them with multiple heads and/or bodies, including such monstrosities among the breeds of man himself. This belief, complete with similar exaggerations, is also encountered on the other side of the world among the Zuni Indians.³ One can actually imagine the old timers telling these tales around campfires and being asked how monstrous could these beasts have been. Hyperbole would have been utilized in order to impress, and these exaggerations would have multiplied with the telling of the tales. And yet, as we shall soon see, some of these embellishments might not really have been all that implausible.

Another snippet preserved by Ovid is included by the Roman poet in his version of Deucalion's flood, a Greek legend that stretches back into dim antiquity. Unfortunately this legend has gone through various transformations, especially when it comes to the dating of the event. While this is not the place to debate this particular issue, I must here borrow credence in claiming that the passage I have in mind was added by Ovid as a postscript to the tale out of chronological order because that is where it seemed logical for him to place it. In other words, without any real evidence to back me up, I am here proposing that the datum in

¹ *New Scientist* (August 12, 1995), p. 48.

² G. Rawlinson, *loc. cit.*

³ R. Van Over, *Sun Songs: Creation Myths from Around the World* (N. Y., 1980), p. 26.

question originated as a dim memory of the events following the melting of the Pleistocene glaciation and the incursion of the sea before it was grafted to the tale of Deucalion's flood. Judging by the different flood legends in which the Greeks believed, the confusion of one with the other seems more than obvious.¹

"So when the earth, all muddied by the recent flood, grew warm again, under the kindly radiance of the sun in heaven [Ovid tells us in this snippet], she brought forth countless forms of life. In some cases she reproduced shapes which had been previously known, others were new and strange."²

While our thesis is not reliant on the above, it should be kept in mind that no creatures "new and strange" are known to have made their appearance following the end of the Pleistocene Ice Age, whereas the temporary appearance of mutated animals following proto-Saturn's flare-up is more than merely probable. Thus, in our own scenario, "the kindly radiance of the sun in heaven" that Ovid mentions would have been the radiance of the proto-Saturnian sun.

HUMANITY IN CRISIS

Man is the most intelligent animal on Earth. For that reason he would have proven better at seeking shelter from catastrophes than the lower animals. In the face of calamities, the beasts of the Earth are wont to panic. Man, too, tends to panic in such situations. But he is better at overcoming terror than the brutes of the land. Moreover, man is a fast learner. Experience would have taught him to recognize the signs of impending disasters. His chances of survival thus bear an edge over that of beasts. It is not that he would not have succumbed, and in great number, to the sort of adversities we have been studying. The number of people killed in earthquakes, hurricanes, tsunamis, and other ravages of nature in the present world is enough to demonstrate that much larger numbers would have fallen prey to the more tremendous and extensive devastations with which we are concerned. But it would be in keeping with man's nature if we were to insist that, at least percentage-wise, fewer people would have fallen prone to these destructions than animals at large. Here it is worthwhile noting that, when compared to the colossally vast number of Pleistocene animals, human population was a mere drop in the proverbial bucket. More than that, while the members in most of these Pleistocene herds would have numbered in the thousands, the number of humans in a tribal clan would hardly have been counted in the hundreds. For that reason we should expect to find fewer remains of human victims among the fossils that can be dated to the end of the Pleistocene. But, worldwide, even these few should number in the thousands. Where do we find their graveyards?

Remains consisting of several hundred human skeletons have been dug out of calcareous tufa from the banks of the Rio Santas in Brazil. These were mixed with sea shells which proves that the remains were deposited by marine action.³

¹ While we do not quite agree with him on every issue, see for instance R. Graves, *The Greek Myths*, Vol. I (Harmondsworth, 1964), pp. 138, 141-142.

² Ovid, *Metamorphoses* I:416-437 (emphasis added).

³ C. H. Hapgood, *The Path of the Pole* (N. Y., 1970), p. 289.

"It seems unlikely that these [human] remains were formerly buried by sorrowing friends. It is unlikely that so solid a stone [in which their remains were found embedded] should have been formed at so great a distance from the sea...No doubt they are co-existent with the emerged land; they are not to be considered as the results of human industry. The shore of the Atlantic must have formerly swept nearly in a line with these remarkable deposits."¹

The time in which these humans lived can be deduced from the fossil bones of Pleistocene elephants and other fauna which were embedded within the same bed as also nearby.²

The bones of human individuals of both sexes and various ages have also been found buried in the hardened clay overlying the floor of a cave on the borders of Lagoa do Sumidouro in the same country. Already mentioned on a previous page of this work, the skeletons discovered there, of Neanderthal stock, were mixed together in confusion "not only with one another but with the remains of the Megatherium and other Pleistocene mammals." The nature of this confusion suffices "to preclude the idea that they had been entombed by the hand of man."³

Other caves displayed the bones of humans alongside those of the giant Pleistocene feline known as the Smilodon, concerning which an early explorer noted that: "Doubtless these men and animals lived together and perished together, common victims of catastrophes, the time and cause of which are alike unknown."⁴ In view of what we have learned above, it is, however, no longer possible to claim that "the time and cause" of these remains remain "unknown." Various other instances of similar nature can be cited from other districts of South America. As Charles Hapgood noted:

"These extraordinary modes of burial are further exemplified by the groups or caches of animal fossils unearthed at widely separated South American localities, in which incongruous animal types (carnivores and herbivores) are mixed promiscuously with human bones. These are found not only in the Pampas formation but also in Brazilian caves and in volcanic ash at Punin and elsewhere...Clearly these varied, but apparently contemporaneous, burials all over the South American continent are the results of different and relatively localized effects of a single tremendous upheaval, the numerous ramifications of which operated synchronously. In seeking to explain one of these effects, one must explain them all."⁵

Further north on the same continent, human bones have been found in a chaotic deposit in a cave in the Organ Mountains of New Mexico. And these, too, were mixed with the remains

¹ *Ibid.*

² *Ibid.*

³ *Ibid.*, p. 290.

⁴ *Ibid.*

⁵ *Ibid.*, p. 292 (emphasis added).

of various Pleistocene mammals.¹

So, similarly in California where human remains were discovered mixed with what later proved to be the bones of Pleistocene fauna by early gold miners. Of special interest here are the remains unearthed from beneath auriferous gravels underlying lava-capped ridges at Table Mountain.²

Human bones have also been found near Natchez on the Mississippi mixed with those of mastodons, horses, and rhinoceros.

From a cave in France comes additional evidence of human skeletons found together with the bones of wild animals.³ Because some of these animals, such as bears, hyenas, lions, leopards, and wolves, are known to have been cave dwellers, the cave might be interpreted as having served as a part-time lair that was also utilized by man. Among the remains of these animals, however, were also those of the great deer, the woolly rhinoceros, and the mammoth, which are hardly animals that would have sought shelter in a cave under normal conditions.

Human bones, again associated with those of the mammoth, the woolly rhinoceros, and the giant deer, have also come to light in Belgium near Namur. And so, also, in Devonshire, England, where human skeletons have again been discovered together with similar Pleistocene mammals. Further human bones have come to light in Gibraltar; near Weimar in Germany; in Honan, China; in northern Rhodesia; and elsewhere.⁴ As we know through archaeological sites, Paleolithic man buried his own kind. Thus when fractured and dismembered human skeletons are found scattered pell-mell among the similarly disarticulated bones of various beasts which are not known to normally cohabit or to habit the same regions, let alone in fissures and caves in which they have been found crammed, covered with water-borne sediment which often contains signs of past marine life, or beneath volcanic ash and hardened lava—these cannot be blamed on the natural order of dying and consequent entombment. These are signs of universal catastrophes which, among other things, included volcanic eruptions and tsunamis of global dimensions,

We could go on enumerating case after case right across the world in greater detail but a point has to be reached where enough will have to do. It is not as if previous catastrophist literature has not filled enough pages with similar and more numerous evidence. One major point to keep in mind, however, concerns the disappearance of the Neanderthals who never made it into the Neolithic. In fact, they never made it out of the Ice Age. We cannot, however, claim that Neanderthal man was a victim of proto-Saturn's flare-up because he seems to have disappeared much earlier. At least, other than in Brazil, no Neanderthal fossils have been found that date later than 30,000 years ago.⁵ To my knowledge, again with the exception of Brazil, none of these remains were found in a catastrophic context. What drove

¹ C. Stock, "Occurrence of Human Remains in Conkling Cavern, New Mexico," *Bulletin of the Geological Society of America*, Vol. 42, p. 370.

² D. S. Allan & J. B. Delair, *Catalysm!* (Santa Fe, New Mexico, 1997), pp. 130, 132.

³ H. Obermaier, *Fossil Man in Spain*, as cited by A. M. Rehwinkel, *The Flood* (St. Louis, Miss., 1951), p. 32.

⁴ *Ibid.*, p. 33.

⁵ B. Hills, *Origins: Cosmology, Evolution & Creation* (Cambridge, 2003), p. 259.

them to extinction thus remains a mystery. In this respect, however, we are no better or worse off than mainstream anthropologists.

On the other hand, while it is generally believed that we moderns are descended from the Cro-Magnons, it can safely be stated that the Cro-Magnon *culture* failed to make the transition. This is especially evidenced by the fact that Cro-Magnon artistry completely disappeared at the end of the Pleistocene to be replaced by Mesolithic naiveté that continued into the Neolithic. What happened to those artists whose sophisticated and anatomically correct renditions once filled the caves of Europe? Is it likely that the artists were the only ones to succumb, and all of them at that?

One may well ask why were so many faunal species exterminated while others survived into the modern world? Or why did the Arctic mammoth live on, only to be eradicated by the next cosmic catastrophe?¹ One can only claim that this was simply due to the vagaries of nature, especially when, as in our case, nature tends to go wild.

RACIAL DIVERGENCE

As in the animal kingdom, radiation would also have caused mutations among humans. At present, it is our atmosphere that protects us from primary cosmic rays. John Hagen additionally tells us that:

"It has been estimated that an increase by a factor of ten over the intensity of cosmic rays at sea level may affect humans by causing serious mutations in succeeding generations. The intensity of cosmic radiation outside the atmosphere may well reach this level and the particles are heavier."²

How much more so would cosmic radiation have affected humans through the flare-up of a sub-brown dwarf star at close proximity?

Despite what appears to be nothing but the fantasy of an ancient mind, that fragment of the work of Berossus preserved by Alexander Polyhistor we have touched upon above does not merely speak of "monstrous animals" but also treats of what appear to be *human* mutations. After describing that time "in which there was nothing but darkness and an abyss of waters,"³ he goes on with:

"Men appeared with two wings, some with four and with two faces. They had one body but two heads; the one of a man, the other of a woman. They were likewise in their several organs both male and female. Other human figures were to be seen with the legs and horns of goats. Some had horses' feet; others had the limbs of a horse behind, but before were fashioned like men...men too and other animals, with the heads and bodies of horses and the tails of fishes."⁴

¹ See here D. Cardona, *op. cit.*, pp. 68 ff.

² J. P. Hagen, "Interplanetary Exploration," *Encyclopaedia Britannica*, Vol. 12 (1959 edition), p. 531.

³ Fragment of Berossus from Alexander Polyhistor as reproduced by R. K. G. Temple, *The Sirius Mystery* (N.Y., 1976), p. 251.

⁴ *Ibid.*

Not only is this description too fantastic to be believed, it also seems that Berossus might have been influenced by the depiction of mythological creatures he would have seen in Babylon, mistaking them for the former appearance of flesh and blood monstrosities that could have populated an earlier era. This is evidenced through his own admission when he adds that: "Of all these were preserved delineations in the temple of Belus at Babylon."¹ And yet one cannot help wondering whether these depictions in stone might not have been confused by Berossus with a somewhat similar description of mutated humanity in some long lost Babylonian tradition.

In turn this brings to mind a modern report which appeared in the British newspaper, the *Daily Telegraph*, which claimed that quite a few infants born within a large radius of the previously mentioned Chernobyl disaster have been prone to birth defects including short wing-like arms and/or a lower extremity which has been compared to a fish tail.² We note here two of the characteristics described by Berossus—men with two wings and others with "the tails of fishes." Additionally, men or women with "one body but two heads" are now known as Siamese twins. The curse of the club foot is also known and these would have been easily compared to goats' and horses' feet. To be sure, I will not vouch for the reliability of the *Daily Telegraph* report since research has led me to believe that no such radioactive mutants have resulted from the fall-out of the Chernobyl disaster. But even if the report was mistaken, deformed arms that look like miniature wings and deformed legs that, together, take on the form of an enlarged fish's tail are not unknown among human birth defects. Thus, remembering the time in which it was written, the description by Berossus is not really all that far-fetched. Much stranger creatures have exhibited themselves in side "freak" shows in circuses and fairs throughout the world in the recent past.

Less dramatic was the Jewish historian Josephus who spoke of nature "which, at certain revolutions of time, produces such mutations in the bodies of men, in the earth, in plants, and in all things that grow out of the earth."³

Similarly, in the New World we meet the Tupinambas of Brazil whose creator, known as Monan, is often confused with the somewhat lesser deity Maire-Monan.⁴ Unfortunately this confusion disallows us from telling which deity was responsible for what follows even though it is presently attributed to Maire-Monan. It is said of this deity that, close to the time of Creation, he had "the power of changing men and animals into other forms."⁵

Together with the previous snippet from Ovid, the totality of these reports, garbled as they may be, tend to make us believe that they are based on ancient traditions concerning the appearance of mutations which, in a reduced humanity, would have stuck out like the proverbial sore thumb.

Why were these mutations not passed on? We all know about Siamese twins, human gi-

¹ *Ibid.*

² *Daily telegraph* (April 29, 1992).

³ Josephus Flavius, *Antiquities of the Jews* (also known as *Jewish Antiquities*), VI: i: 2.

⁴ M. Fauconnet, "Mythology of the Two Americas," *New Larousse Encyclopedia of Mythology* (London, 1972), p. 445.

⁵ *Ibid.*

gantism, midgets, dwarfs, and hunchbacks, to name but a few. Although in some cases, especially among human giants, life spans might be shortened, these mutants, as well known, do mate and breed but they give birth to normal children. As in the animal kingdom, it therefore becomes obvious that *most* of the mutated human individuals who survived proto-Saturn's flare-up failed to pass their mutated genes to their offspring so that, in a very short time, they would have disappeared completely.

At the end of an article dealing with mutation and evolution, James Crow concludes that, "the effects produced by mutations are of all sorts, and are mostly harmful."¹ As he goes on:

"Some [mutations] cause embryonic death, some severe disease, some physical abnormalities, and probably many more cause minor impairments of body function that bring an increased susceptibility to the various vicissitudes of life. Some have an immediate effect; others lie hidden to cause their harm many generations later. All in all, mutations must be responsible for a substantial fraction of human premature death, illness and misery in general."²

Bear in mind, however, that while Caucasian dwarfs and midgets tend to give birth to normal offspring, *African Pygmies give birth to pygmy children*.

That mutations *can* be inherited is well known, where such mutations are passed on from mother to child. Thus, for instance, numerous members of a Rhodesian tribe have feet with only two toes that have been compared to the feet of an ostrich or the claws of a lobster. The defect is a hereditary condition, possibly via a single mutated gene. In this particular case, the deformity has been traced to a woman in the Zambesi valley. A relative of hers is known to have settled near Botswana and her two-toed descendants now number in the hundreds.³

A better known case among African people is the development of steatopygia, a very conspicuous characteristic what occurs mainly among Bushmen and Hottentots. This consists of a fatty accumulation on the thighs and buttocks and is believed to serve as "food store for the body during periods of droughts." But, as Josef Wolf notes, "ancient cave paintings show women with steatopygia at times when the Khoisan [Bushmen and Hottentots] were living in relatively fertile, well-watered territory, so this argument may not be altogether correct." Wolf adds that: "The fact that the condition is much admired by the men indicates that sexual selection may also have played a part in preserving this interesting characteristic."⁴ This might be so, but it does not explain *how* "this interesting characteristic" originated.

More importantly, however, is the question concerning the origins of the Negroes and the Pygmies of the African continent. The derivation of man's racial variety has been debated for many years. What is conceded by all parties is that "the remarkable diversity in our species today has its roots in the changing and sometimes harsh conditions of the last ice age."⁵ This consensus has been reached because the fossil record of modern-like humans does not stretch

¹ J. F. Crow, "Ionizing Radiation and Evolution," *Scientific American* (September 1959), p. 160.

² *Ibid.*

³ *Sunday Times* (January 13, 1980).

⁴ J. Wolf, *op. cit.*, p. 173.

⁵ *Ibid.*, p. 159.

beyond that point. The Caucasoid race is known to have existed *during* the Ice Age as evidenced by the remains of the Neanderthals and Cro-Magnons. But, as James Strickling astutely asked, “where...did the dark-skinned people of Africa come from?”¹ Quoting C. S. Coon, Strickling stresses that the “origin of the African Negroes, and of the Pygmies, is the greatest unsolved mystery of racial study.”²

“Wherever any of these people originated, the accepted time scale of their color differences fits comfortably within the framework of uniformitarianism. We are assured that the ‘differentiation of white, yellow and black races took place over a period of half a million years by mutation’.”³

But here’s the rub: “Surprisingly enough, in Africa, the continent which is considered by some to be the cradle of human evolution and which has been populated (though on a very restricted scale) by members of the genus *Homo* for over three million years, the origins and distribution of peoples of modern type are very largely obscure.”⁴ In discussing the African Pygmies, Colin Turnbull had this to say: “The BaMbuti, as the Pygmies of the Ituri Forest are known to themselves and to their neighbors, may be the original inhabitants of the great stretch of rain forest that reaches from the Atlantic coast right across Central Africa to the open grassland country on the far side of the chain of great lakes that divides the Congo from East Africa.”⁵ Moreover: “Their origin, along with that of Negrito peoples [that is, Asiatic Pygmies] elsewhere in the world, is lost in the prehistoric past.”⁶ As Coon writes: “As far as we know, the Congoid line started on the same evolutionary level as the Eurasian ones in the Early Middle Pleistocene and then stood still for a half million years, after which *Negroes and Pygmies appeared as if out of nowhere.*”⁷ Furthermore, they did so in the Upper Pleistocene⁸ or, in other words, at the end of the Ice Age. Later studies did not change the picture. “It is not until much later in the fossil record, about the beginning of the Neolithic period some 10,000 years ago,” writes Wolf, “that recognizably ‘modern’ Africans can be identified from the skeletal remains.”⁹ And: “It is not until a time-level of about 10,000 years ago that skulls with a definite Negro appearance occur in the fossil record.”¹⁰

The absence of earlier Negro fossils has often been blamed on the humid environment of West Africa which is “traditionally viewed” as the Negro homeland, and “which is not

¹ J. E. Strickling, *Origins: Today's Science, Tomorrow's Myth* (Norcross, 1996), p. 186.

² C. S. Coon, *The Origin of Races* (N. Y., 1962), p. 588.

³ J. E. Strickling, *loc. cit.*, citing C. D. Darlington, *The Evolution of Man and Society* (N. Y., 1969), p. 44.

⁴ J. Wolf, *op. cit.*, p. 158

⁵ C. M. Turnbull, “The Lesson of the Pygmies,” *Scientific American* (January 1963); see also J-P Hallet (with A. Pelle), *Pygmy Kitabu* (N. Y., 1973), pp. 4-5.

⁶ C. M. Turnbull, *loc. cit.*

⁷ C. S. Coon, *op. cit.*, p. 658 (emphasis added).

⁸ *Ibid.*

⁹ J. Wolf, *loc. cit.*

¹⁰ *Ibid.*, p. 173.

suitable for good preservation of bone.”¹ And so, likewise, concerning the absence of fossil Pygmy skeletons.² But is it a coincidence that the oldest discovered Negro and Pygmy skeletal remains happen to be dated to our benchmark figure of 10,000 years ago?

To be sure, evidence of a greater antiquity for the Ituri Forest Pygmies has been based “on the discovery of stone implements, the oldest of which are dated to about 20,000 years ago.”³ This, however, tells us nothing about the *stature* of the people who used these implements, even if they were the ancestors of the Ituri Pygmies.

Am I claiming that the African Negroes and Pygmies originated as the result of sudden mutation incurred through proto-Saturn’s flare-up? Let me just say that the hypothesis is worthy of consideration. Actually, however, race is more a case of genetic recombination than outright genetic mutation. But, in our case, this will be found to make little difference.

In the meantime let no one suppose that the Pygmies and Negroes of Africa, together with their North American descendants, are mentally, or otherwise, inferior to any other race. In the end, regardless of race, we are all descended from mutants.

BURPING METHANE

In the search for the most viable theory of past extinctions, Gregory Ryskin has recently come up with a new hypothesis. As summarized by Susan Kruglinski:

“Ryskin proposes that huge deposits of methane and other gases, which are naturally produced in deep-sea waters, became trapped under the pressure of a then-stagnant global ocean. Any forceful disturbance—an earthquake or a volcanic eruption, for instance—could have disrupted the pressurized gas. Rising methane could have churned the ocean, suffocating aquatic organisms, and flooded into the atmosphere, triggering a worldwide hot spell. A single lightning stroke could even have set the whole planet aflame.”⁴

Ryskin meant this scenario to apply to the great extinction of the Permian which “wiped out virtually all marine species and most life on land.” Gregory Retallack, on the other hand, thought this explanation rather dubious because he couldn’t see how that much methane could be stored underwater. But, as Ryskin pointed out, “minor gas belches still create hazards in lakes and coastal areas.” Moreover, the same thing, if on a somewhat smaller scale than that envisaged by Ryskin, was later found to have transpired at the end of the Pleistocene. But where does oceanic methane came from?

It has now been ascertained that “nearly a third of all the life on this planet consists of microbes living under the seafloor in a dark world without oxygen.”⁵ What was originally thought to be mud hoisted from the bottom of the Black Sea in the summer of 2001 turned

¹ *Ibid.*; see also J. D. Clark, “African Beginnings,” in A. M. Josephy, Jr. (Editor), *The Horizon History of Africa*, Vol. I (N. Y., 1971), p. 28.

² J. Wolf, *loc. cit.*, p. 174.

³ *Ibid.*

⁴ S. Kruglinski, “What Caused the Biggest Kill of All?” *Discover* (December 2003), p. 16.

⁵ R. Kunzig, “20,000,000,000.....Microbes Under the Sea,” *Discover* (March 2004), p. 33.

out not to be mud at all. About one ton of biological material was hauled up and it turned out to be “a cubic meter of bacteria.” Diving into the area a few days later in the German submarine *Jago* revealed curtains of rising bubbles through a flood-lit fog of floating particles. Nor were these bubbles being released through hot vents. They came, instead, from non-volcanic chimneys that were as soft as flesh. Knocking one over by one of the submarine’s hydraulic arms, it was discovered that the chimney had been constructed by single-celled microbes. “The microbes formed the outer layers; the hard core was a carbonate mineral they had secreted.”¹ It is these microbes which are now known to manufacture methane.

“The evidence is now clear that far below the sea, and far below the floor of the sea, in sediments all over the world, microbes live to astonishing depths...and in astonishing numbers. The deepest of the microbes make methane, which the ones in shallower sediments consume. To all of them, oxygen is poison.”²

The total amount of methane produced by these organisms has been estimated to be “greater than the mass of all known reserves of coal, gas, and oil.” Moreover, methane is a potent greenhouse gas. It has even been theorized that the release of this microbial methane may have aided in pulling Earth out of recent ice ages by radically changing the climate. More than that, sudden blasts of this methane have been linked to undersea landslides that would have caused ocean-crossing tsunamis and even mass extinctions.³

The scar left behind by one these massive landslides occurs off the coast of Norway in the form of a 1,000-foot high cliff at the edge of the continental shelf. The floor of the ocean at this point has been dated to have dropped about 8,200 years ago. The landslide that caused it “was one of the greatest in Earth’s history.”⁴ The magnitude of this slide was reported by Kunziger on the authority of Jürgen Mienert:

“Blocks of mud perhaps 20 miles long, a couple of miles wide, and 150 feet high rushed down the slope. More than 1,000 cubic miles of sediment and rock shifted. The slide ran out 500 miles to the northwest, north of Iceland, where it met the Mid-Atlantic Ridge and was diverted south. Over an area of 35,000 square miles, the whole ocean was as muddy as the Mississippi after a storm, and the seafloor was wiped clean of whatever lived there.”⁵

Moreover, as Mienert has deduced, the slide occurred “in a very short time...perhaps in a few weeks, perhaps a few days, perhaps a couple of hours.”⁶

“The disturbance propagated a tsunami that flooded coastal areas as far away as Scotland. Along the coasts of Scotland and Norway, the wave ranged between 20

¹ *Ibid.*, p. 34.

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*, p. 39.

⁵ *Ibid.*

⁶ *Ibid.*

and 50 feet high. It may have crested at 65 feet as it roared up narrow Norwegian fjords.”¹

As Kunzig cautions: “To say that the cataclysm was caused by deep-living microbes would be excessive—but their methane may have had a lot to do with it.” There are cracks in the seafloor about 3 miles wide and 50 feet deep just north of the slide. They are dotted with what Mienert calls pockmarks. And that is where the methane escaped. Mienert himself blames all of this on the melting of the Pleistocene ice when Atlantic water flowed in and warmed the bottom.² But, in our own scenario, it is just as probable that the slide—and various others around the world which have not yet been recognized—were caused by the temporary slowing down of Earth’s rotation due to proto-Saturn’s flare-up. Such sea bottom cracks and pockmarks have also been discovered at the edge of the continental shelf near Cape Hatteras. In fact, pockmarks “are turning out to be extremely common, *especially in the Arctic*” and Mienert “has seen fields of them in the Barents Sea.”³ That these pockmarks could not be extremely old is evidenced by the fact that they have not yet been filled by sediment washing down to the sea from inland rivers. Thus, as Kunzig rightly surmises, these pockmarks “date from the last ice age.” The only problem with all this is that, as surmised by the marine geologist James Kennett, bursts of methane from the seafloor would have been largely responsible for “virtually all the warmings the planet has experienced over the last 800,000 years.”⁴ As always, once a cause is found to account for an event, it tends to end up being the event’s one *and only* explanation in the minds of those involved with that particular theory.

Not only that, but, as always with any new theory, this one, too, found its detractors. Thus Gerald Dickens was of the opinion that the chances of deep-sea methane actually making it to the surface is zero. But blocks of hydrate floating on the surface as well as gas bubbles rising to the top have been witnessed off the coast of Oregon and the Gulf of Mexico. Even so, Dickens continued to claim that “no one has shown that quantities of methane large enough to change the climate would reach the atmosphere.”⁵ Our own stand, of course, is somewhere in between. No, we do not accept that the escape of oceanic bacterial methane would have been enough to change the climate or cause extinctions at the end of the Pleistocene. But, coupled with all that we have enumerated and described above, it would, if nothing else, have added to the sudden steep incline in temperature.

HEAVEN ON EARTH

We end this part of our work on the same subject with which we started, namely, the heat wave that followed on the heels of proto-Saturn’s flare-up. Here we will add that, although the flare-up ebbed in time, it continued to produce enough heat to raise temperatures world-

¹ *Ibid.*

² *Ibid.*

³ *Ibid.* (emphasis added).

⁴ *Ibid.*, p. 40.

⁵ *Ibid.*

wide, resulting in an entirely changed climatic regime which continued for thousands of years. As we have already seen, the memory of this heat wave was actually preserved, even if only by a few of our ancient forebears. But is there evidence of this change?

As previously noted, it has now been theorized that radiation from a nearby supernova about 12,500 years ago would not only have reset Earth's radiocarbon clocks, it would also have caused "various catastrophic phenomena such as heating the atmosphere, melting ice sheets and causing extinctions."¹ Given their astronomical distances, however, one really wonders if supernovae could actually cause such direct repercussions on Earth, despite the "nearby" tag attached to the one discussed above. It seems more likely that if Earth's dire consequences at the end of the Pleistocene requires it to have been bathed in stellar radiation, the source would have had to be much closer than a "nearby" supernova. The only inch I'll give is that the stellar flare responsible would not by astronomical standards be considered "super." After all, as already noted, non-dwarf stars are not the only astronomical luminaries that have a propensity for flaring up in nova-like brilliance. Even comets do—and they do so through a similar, if not identical, mechanism—by throwing off shells of matter. Some of them even do so repeatedly. Such, for instance, was the case with comet Schwassmann-Wachmann 1, which has been observed to throw off such shells more than once, each time increasing its brightness by at least a hundred-fold.² Such cometary flare-ups are not known to cause any catastrophic effects on Earth. While "nearby" supernovae remain too far, "nearby" comets are much too frail. Even flares from "nearby" brown dwarf stars would fail to do the job—unless by "nearby" we mean *exactly* that.

It has long been assumed that the disappearance of the glaciers was due to the warming up of climate. As far as Ernst Öpik, as well as others, was concerned, this was due to a rise in the Sun's own generative power. As he surmised: "In the end we always come back to the simplest and most plausible hypothesis: that our solar furnace varies in its output of heat."³ However, he himself cautioned that the "peculiar pattern" of alternating freezes and warm climate "cannot be accounted for by any simple scheme of alternate waxing and waning of the sun."⁴ And yet he could not help coming back to his "simplest and most plausible hypothesis." Thus, despite his cautionary tone, he found it worth repeating that: "A worldwide fall or rise of temperature indicates a change in the heat output by the sun; it is hard to explain in any other way."⁵ He therefore had to come up with a novel theory concerning the manner in which the Sun behaves.⁶ It is not a theory that has won many adherents.

In our own scenario, proto-Saturn's flare-up would have released a certain amount of its internal heat, which heat would have radiated onto Earth, in addition to the heat released through the friction of the sliding plates brought about by the temporary braking of our globe,

¹ Reported in "Factors to Take into Account," *Chronology and Catastrophism Review* (2001:2), p. 46.

² G. B. Marsden, "Non-Gravitational Effects in Comets: The Current Status," in *The Motion, Evolution of Orbits and Origin of Comets* (Dordrecht, Holland, 1972), p. 136.

³ E. J. Öpik, "Climate and the Changing Sun," *Scientific American* (June 1958).

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

to say nothing of that expelled through world-wide volcanic vents. It is this combined heat—yes, even including burping methane—that was mainly responsible for the melting of the Pleistocene glaciers.

As we have also seen, the most recent complete and durable geomagnetic reversal occurred around 10,000 years ago. It therefore comes as no surprise that geomagnetic reversals have been tied to past climatic changes. When Earth's magnetic field weakens, Goesta Wollin has shown, a general warming of the climate follows. Fluctuations in climate, it has been found out, correspond with geomagnetic reversals.¹ It is not, however, that geomagnetic reversals have themselves caused a lowering or rise in temperature, but that climatic changes and geomagnetic reversals have coincided because they were the outcome of one and the same occurrence. This is evidenced by the fact that the geomagnetic reversal associated with the end of the Pleistocene was also accompanied by earthquakes, volcanism, fluctuations in Earth's water table, and faunal extinctions.² It is not conceivable that all these drastic events would have been caused by a geomagnetic reversal or excursion. What the evidence really calls for is that all these occurrences were concurring events resulting from the same single cause.

Evidence of a rapid change in climate at the end of the Pleistocene has now been discovered in *quantum sufficit*. Doug Harkness of the Natural Environment Research Council has produced such evidence. Speaking for the climate of Scotland, he has found that, at the end of the last glaciation, the climate changed from Arctic-like to one similar to that of the present day. Moreover, Harkness was adamant in stating that this change happened “remarkably rapidly” within a period of 100 to 200 years.³

But even this period of 100 to 200 years has been repudiated by electrical conductivity measurements on Greenland ice cores. This has shown that, in the late Pleistocene, Earth's climatic system “consistently and frequently” changed “between glacial and near-interglacial conditions in periods of *less than a decade*, and on occasion *as quickly as three years*.⁴ From this one may suspect that, since the evidence comes from Greenland, these sudden climatic shifts would only have affected Arctic and near-Arctic latitudes. But confirmation that this sudden climatic shift at the end of the Ice Age was global in extent came from the study of a dry lake bed in New Mexico.⁵ Moreover, evidence from ocean sediment cores have also indicated similar “rapid changes in sea surface temperatures.”⁶

But what, exactly, do these inferred climatic changes constitute? What the Greenland ice cores really indicate is that there was a sudden increase in terrestrial heat “just over 11,000 years ago” when “the temperature shot up by 9 to 18 degrees Fahrenheit...in possibly less

¹ J. Gribbin, “Geomagnetism and Climate,” *New Scientist* (February 5, 1981), pp. 350-353.

² J. P. Kennett & N. D. Watkins, “Geomagnetic Polarity Change, Volcanic Maxima and Faunal Extinction in the South Pacific,” *Nature* 227 (1970), pp. 930-934; R. W. Fairbridge, “Global Climatic Change During 13,500 BP Gothenburg Geomagnetic Excursion,” *Nature* 265 (1977), pp. 430-431.

³ *Daily Telegraph* (September 8, 1989).

⁴ K. C. Taylor, *et al.*, “The ‘Flickering Switch’ of Late Pleistocene Climate Change,” *Nature* (February 4, 1993), p. 435 (emphasis added).

⁵ *New Scientist* (July 24, 1993), p. 14.

⁶ K. C. Taylor, *et al.*, *loc. cit.*; see also *New Scientist* (March 13, 1993), p. 17.

than a single decade.”¹ As Richard Alley, then of the Pennsylvania State University, proclaimed: “That amount of heating, coming so quickly, is astounding.”²

Until recently, Earth’s past global warming was blamed on increased levels of carbon dioxide. Recent research, however, indicates that variations in cosmic ray activity and magnetized plasma are more important in raising world-wide temperatures. Of course, these energetic particles are believed to have emanated from the Sun.³ Needless to say, in our own scenario they would have been shed by proto-Saturn during its momentous flare-up.

We could go on enumerating sources which speak of the sudden build-up of heat at the end of the Pleistocene Ice Age, but this is a subject which finds no dissenters in orthodoxy. John Lewis put it all in a nutshell when he wrote:

“Climatological studies of the last 2 million years from Antarctic to Greenland ice-core records show that the global climate has been very unstable for that entire period of time, spanning several advances and retreats of the ice sheets and several relatively benign interglacial periods. The most astonishing feature of the entire record is that the last 6,000-10,000 years have provided by far the most stable and warm conditions in those 2 million years. *These few thousand years of exceptionally benign and stable climate coincide with the period of explosive development of human civilization.* From the birth of agriculture, the founding of the first cities and the origin of writing, through the establishment of the major religions, the birth and growth of science, technology, and industrialization, to the space age...all this has happened in our narrow window of time. There has not been a single other time since the appearance of the earliest hominids that Earth’s climate has been so conducive to civilization. We owe all human culture to a freak interval of climate stability which we think of as ‘normal.’ We do not know why the last 2 million years were so unstable, or why the last few millennia have been so stable. We do know that civilization depends on climate stability. *When—and how—will this fool’s paradise end?*”⁴

From a chronological perspective, the point we have reached in our own scenario is still far from the advent of agriculture, to say nothing of civilization, the birth of writing, and all that these human novelties entailed. For the present, we will simply hold on to the end of the Pleistocene Ice Age and the balmy weather which followed, if not immediately, at least soon after. This new climatic regime that proto-Saturn’s flare-up ushered in was in later times nostalgically remembered, among other things, as Heaven on Earth. But of that, more in a future volume.

¹ P. James & N. Thorpe, *Ancient Mysteries* (N. Y., 2001), p. 9.

² *Ibid.*

³ *New Scientist* (June 21, 2003), p. 13.

⁴ J. S. Lewis, *op. cit.*, p. 205 (emphasis and ellipses as given).

Epilogue

THE ELECTROMAGNETIC UNIVERSE

Although the revelation of proto-Saturn's flare-up was derived from the mytho-historical record, a fair amount of the foregoing has been based on the hard sciences. It is therefore not surprising that, while the writing of this book was in progress, discoveries continued to be made at an ever increasing rate, many of which added further evidence in support of the thesis presented in the foregoing chapters. While nothing that is strictly new has emerged in the interim, the inclusion of these discoveries should not be viewed as redundant because, in a thesis so heavily at variance with presently received opinion on many a subject, we have to buttress our position with as much evidence in its favor as we can lay our hands on. What might therefore be seen as repetitive in some of what follows below has been included to show that, regardless of what critics might come up with, there is nothing in these discoveries that contradicts our scheme.

We have come a long way since the mid-1950s when Cecilia Payne-Gaposchkin went on record in stressing that electromagnetic phenomena are of no importance in space.¹ Would that she, and those who blindly repeated her false assertions, had paid greater heed to the likes of Hannes Alfvén who had long been proclaiming what eventually was found. But then, bless their souls, when astrophysicists did eventually realize that the Universe is permeated with magnetic fields, they hamstrung themselves into believing that these fields are of "unforeseen power and *unknown origin*."²

"A galactic field must somehow be generated from scratch, amplified to the strength now observed, ejected into intergalactic space and further amplified there. Each stage poses problems."³

"The only place where you have that much energy," Stirling Colgate announced, "is a supermassive black hole."⁴ Earlier I would have said that until such black holes, supermassive or otherwise, are somehow detected, their existence must remain in the realm of speculation. But before this work went to press, news came in from mainstream physicists stressing what had been indicated five years earlier⁵ that black holes do not exist.⁶

"If new calculations are correct, the universe just got even stranger. Scientists at Case Western Reserve University in Cleveland, Ohio, have constructed

¹ R. E. Juergens, "Minds in Chaos," in A. de Grazia (Ed.), *The Velikovsky Affair* (N. Y., 1966), pp. 21-22.

² G. Musser, "Magnetic Anomalies," *Scientific American* (August 2000), p. 22 (emphasis added).

³ *Ibid.*

⁴ *Ibid.*

⁵ *New Scientist* (January 19, 2002), pp. 26-30.

⁶ Staff writers, "Black Holes that are Not There," *spacedaily.com* (June 20, 2007).

mathematical formulas that conclude black holes cannot exist...Asked why then the universe nevertheless seems to be full of black holes, [Lawrence] Krauss replies, ‘How do you know they’re black holes?’ No one has actually seen a black hole, he says, and anything with a tremendous amount of gravity—such as the supermassive remnants of stars—could exert effects similar to those researchers have blamed on black holes.”¹

For whatever reason, astrophysicists have a tendency to ignore the fact that magnetic fields can only be generated by electric currents. As we have often stated, the Universe is now generally accepted to be 99% composed of plasma which conducts electricity and generates magnetic fields in all of space. Our reliance on these forces, and the phenomena they lead to, in the reconstruction of Earth’s past history as set forth in the past chapters of this volume cannot therefore be objected to.

BROWN DWARF STARS

Brown dwarf stars have now been numbered at 100 billion, rivaling the quantity of so-called “normal” stars in our galaxy.² The proposal that proto-Saturn commenced its career as such a star which had been floating alone in space might have raised scientific eyebrows in the past. Not so these days. Although some brown dwarfs do orbit sun-like stars, the majority of them float through the galaxy independently.³

The similarity between dwarf stars and our posited proto-Saturnian sun does not end there. That proto-Saturn could have acted as a dim sun is given credence by what is being discovered about brown dwarfs most of which are actually red.⁴ As Subhanjoy Mohanty and Ray Jayawardhana have assured their readers, the atmosphere of young brown dwarfs should closely resemble those of low-mass stars.⁵ In fact, as the same authorities, to say nothing of others, tell us, brown dwarfs occupy an intermediate slot between planets and stars.⁶

The mytho-historical record upon which we initially based our proto-Saturnian scenario also led us to believe that proto-Saturn was surrounded by a placental cloud, otherwise known as a circumstellar disk. That such disks encircle brown dwarf stars is now universally accepted.⁷ In fact, as the above authorities tell us, disks around brown dwarfs are ubiquitous.⁸ “Of those surveyed,” they report, “more than half evince infrared disk signatures, and the fraction may be as high as 80 percent” and that “brown dwarfs are girdled by disks just as often as stars

¹ P. Berardelli, “No More Black Holes?” *ScienceNOW Daily News* (June 21, 2007).

² K. Croswell, “100 Billion Brown Dwarfs,” *Astronomy* (January 2006), p. 32.

³ S. Mohanty & R. Jayawardhana, “The Mystery of Brown Dwarf Origins,” *Scientific American* (January 2006), pp. 40, 42, 45.

⁴ M. R. Zapatero Osorio, “Planets Without Suns,” *Astronomy* (October 2006), p. 45.

⁵ S. Mohanty & R. Jayawardhana, *op. cit.*, p. 40.

⁶ *Ibid.*

⁷ R. Naeye, “A Bonanza of Exoplanet Discoveries,” *Sky & Telescope* (May 2005), p. 19; *idem*, “‘Free-Floating Planet’ Claims Bolstered,” *Sky & Telescope* (October 2004), p. 20; G. Basri, “A Decade of Brown Dwarfs,” in *ibid.*, p. 39.

⁸ S. Mohanty & R. Jayawardhana, *op. cit.*, p. 43.

are" while "their disk lifetimes are similar."¹ The planetary raw material that has been detected in these disks include small olivine crystals and large dust grains.² "This is exciting because we did not know whether these very light disks would evolve similarly to disks around stars," Dániel Apai reported. "[But] we now understand that not only do they evolve similarly, but they process their dust rapidly."³

So, likewise, when it comes to the column of light emanating from proto-Saturn's south polar axis which the mytho-historical record also led us to. That jets are created by plasmoids has long been known. These jets are "shot" in opposite direction from both poles of the plasmoid.⁴ Such bi-polar jets have not only been detected emanating from stars but have actually been photographed.⁵ And similar bi-polar jets have also been detected emanating from brown dwarf stars.⁶ More than that, bi-polar jets seem to be closely associated with circumstellar disks.⁷

To add to all this, we also find that individual outflows have a tendency to come together and twist into helical filaments.⁸ Sometimes described as "corkscrew-shaped,"⁹ these jets are Birkeland currents which also act as colossal planetary tornados, which is hinted at when described as "outflowing jets and winds."¹⁰

When discovered, at only 24 Jupiter-masses, one jetting brown dwarf, tagged 2MASS1207-3932, was hailed as being "by far the smallest object known to drive an outflow."¹¹ This process, too, has led astrophysicists to suggest that brown dwarfs form in the same manner that stars do.¹² Moreover, as Thomas Ray noted, if such jets can, as they do, form from the centre of galaxies, ordinary stars, and brown dwarfs, there is no reason jet-like emissions could not continue to form all the way "downwards to the planetary stage."¹³ This becomes especially so in the case of giant gas planets like Jupiter, which planet is now unremarkably described as being "similar to a star" in composition, sending out "into space more than one and-a-half times the heat it receives from the sun."¹⁴ Ray is also of the opinion that planets like Jupiter

¹ *Ibid.*, pp. 44, 45.

² R. Naeye, "Evidence Mounts for Brown-Dwarf Planets," *Sky & Telescope* (March 2006), p. 20.

³ *Ibid.*

⁴ B. Hills, *Origins: Cosmology, Evolution & Creation* (Cambridge, 2003), p. 36.

⁵ R. Burnham, "Two Dust Jets Near the Solar System," *Astronomy* (June 2004), p. 24; T. P. Ray, "Fountains of Youth: Early Days in the Life of a Star," *Scientific American Special Edition—The Secret Lives of Stars* (2004), pp. 14–15, 16.

⁶ R. Naeye, "'Free-Floating Planet' Claims Bolstered," *Sky & Telescope* (October 2004), p. 20.

⁷ T. P. Ray, *op. cit.* p. 17.

⁸ *Ibid.*; O. Blaes, "A Universe of Disks," *Scientific American* (October 2004), p. 57.

⁹ R. Naeye, "Sculpting Cosmic Hourglasses," *Sky & Telescope* (July 2006), p. 22.

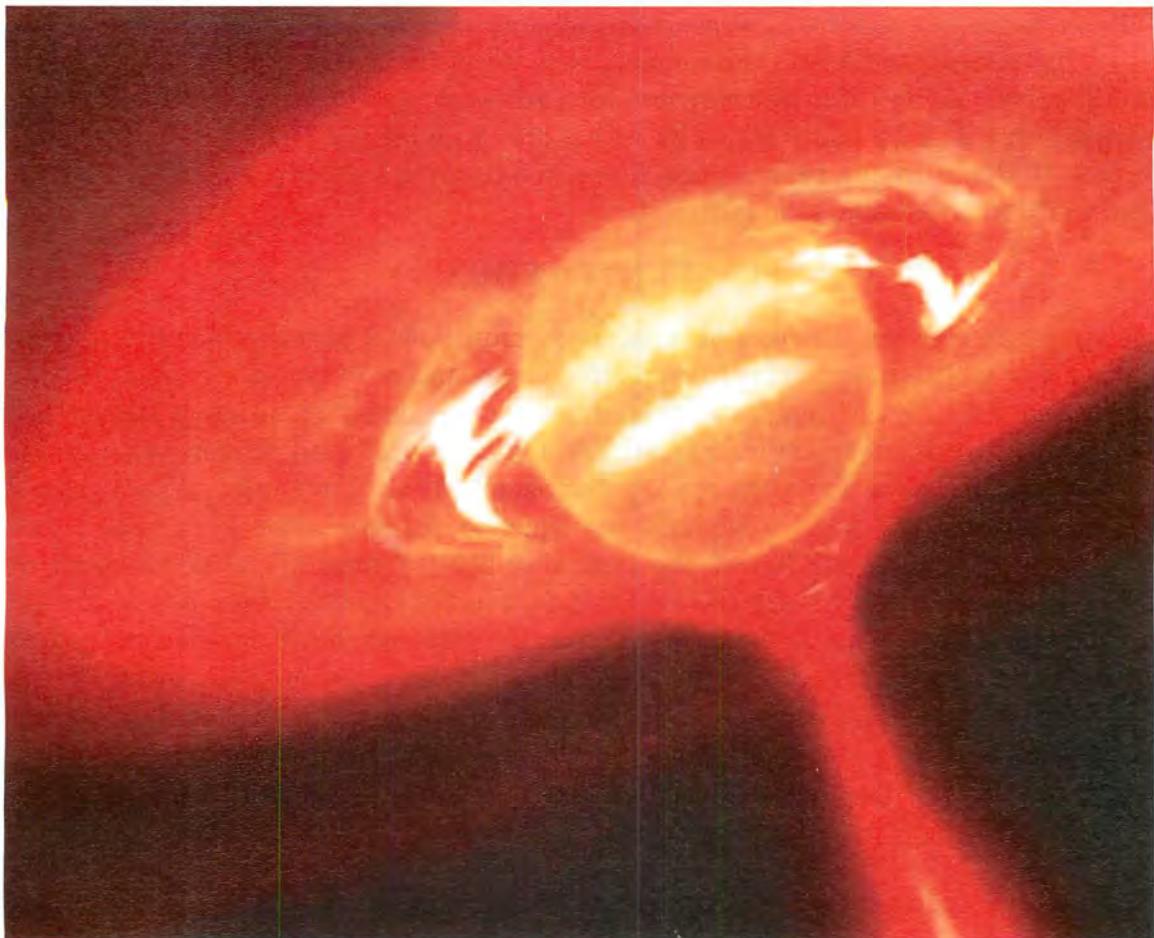
¹⁰ S. Mohanty & R. Jayawardhana, *op. cit.*, p. 44.

¹¹ "A Brown Dwarf Joins the Jet-Set," eso.org/public/outreach/press-rel/pr-2007/pr-24-07.html (May 23, 2007).

¹² M. McKee, "Violent Jet Detected Spewing from Brown Dwarf," NewScientist.com news service (June 24, 2005).

¹³ *Ibid.*

¹⁴ M. K. Baumann, *et al.*, *What's Out There* (London, 2005), p. 83.



Artistic impression of a jetting brown dwarf.
(Illustration courtesy of ESO.)

and Saturn could have very well emitted jets in their youth.¹ In fact, although now invisible due to their electrical balance with their environment, Birkeland currents are still part and parcel of Jupiter's electrical energy.²

That brown dwarfs could harbor planets was at first merely accepted as a possibility.³ But before long, a giant planet was discovered in the company of a brown dwarf by members at the Geneva Observatory.⁴ Eventually, an object in association with a brown dwarf was actually imaged, even though, at first, there were those who doubted its planetary identity.⁵ Not

¹ M. McKee, *loc. cit.*

² T. E. Cravens, *et al.*, "Implications of Jovian X-ray Emission for Magnetosphere-Ionosphere Coupling," *Journal of Geophysical Research* 108 (A12), p. 1465.

³ R. Nacye, "A Bonanza of Exoplanet Discoveries," see above; *idem*, "Evidence Mounts for Brown-Dwarf Planets," see above.

⁴ *Idem*, "Another Resonant Exoplanetary System," *Sky & Telescope* (March 2005), p. 26.

⁵ R. Burnham, "First Exoplanet Imaged?" *Astronomy* (April 2005), p. 20; F. Reddy, "Exoplanet Surprises," in "Top 10 Astronomy Stories of 2005," *Astronomy* (January 2006), p. 41.

long after, a verifiable planet was detected around a dwarf star even though this dwarf was classed as red rather than brown. More importantly, the planet in question was described as an Earth-like one, and that it is probably just one such world to be discovered.¹ But a planet traveling together with an actual brown dwarf has also been imaged.² Thus, our own thesis, which calls for Earth having been a satellite of a sub-brown dwarf, cannot be said to be at variance with current astrophysical possibilities.

PLANET FORMATION

The difference between current belief concerning brown dwarf planets and our scenario is in the manner in which these planets form. Keeping to the theory of planet formation in general, the accepted *modus operandi* re the formation of brown dwarf attendants is through accretion from the debris contained in circumstellar disks. For that reason circumstellar disks, quite a few of which have now been actually photographed,³ are often referred to as *planetary*, or *protoplanetary*, disks, sometimes shortened to *proplyds*. But even here astrophysicists are not all in accord. In fact, this method of planet formation encounters so many difficulties that some astrophysicists have ruled it out entirely.⁴ And yet, even as I write this, others continue to pay homage to the theory⁵ despite the problems they themselves admit to.⁶ While two main separate theories of planet development from circumstellar disks vie for acclaim—one through core accretion, the other through disk instability,⁷ the details of neither of which concern us here—there are at present other so-called “hybrid mechanisms” vying for fame.⁸ Alan Boss, who himself favors the disk instability model,⁹ was forced to admit that:

“Neither core accretion nor disk instability is a completely developed theoretical mechanism. Both approaches leave *major* questions unanswered...[Future] studies will provide the observational tests needed to determine whether theoreticians’ *amusements* have a place in the real universe.”¹⁰

“The truth,” Adam Frank was honest enough to admit, “is that astronomers still do not know much about the origin of planets” and that “our solar system is something of an odd-ball.”¹¹ David Rabinowitz was even more outspoken when he claimed that “we know next

¹ “Earth-Like Planet may be First of Many,” *New Scientist* (January 28-February 3, 2006), p. 12.

² M. R. Zapatero Osorio, *op. cit.*, p. 46.

³ See, for instance, *Astronomy* (June 2006), p. 71.

⁴ D. Cardona, *God Star* (Victoria, British Columbia, 2006), pp. 469-471, and elsewhere in the present work.

⁵ G. W. Marcy, “The New Search for Distant Planets,” *Astronomy* (October 2006), pp. 34-35; A. P. Boss, “How do You Make a Giant Exoplanet,” in *ibid.*, p. 40-43.

⁶ *Ibid.*, p. 38; G. W. Marcy, *op. cit.*, p. 32.

⁷ A. P. Boss, *op. cit.*, pp. 42-43.

⁸ *Ibid.*

⁹ *Ibid.*, p. 42.

¹⁰ *Ibid.*, p. 43 (emphasis added).

¹¹ A. Frank, “How Nature Builds a Planet,” *Discover* (July 2005), p. 30.

to nothing about how the solar system formed.”¹ Core accretion itself, according to Frank, “is rife with uncertainties,”² and “all of these theories and their impressive-looking conclusions are only as good as the assumptions built into them.”³ And then, that disk accretion, in whatever flavor, cannot account for the formation of planets is evidenced by disks surrounding older stars known to already harbor planets. Nor could these disks be ephemeral leftovers from previous planet formation because some of them, “for unknown reasons,” are “100 times as thick as the dust in our solar system.”⁴

The alternative is the plasma ejection model which claims that planetesimals form from “knots” within astral jets⁵—which includes those of brown dwarf stars and thus also proto-Saturn—from where they continue to condense into bigger and more massive bodies. As revolutionary as this might presently appear, a growing number of astrophysicists have endorsed this mechanism in past years, as others continue to do at present.⁶

HEAT RETENTION AND DISSIPATION

We have seen that brown dwarf stars can shed enough warmth to sustain life on any planets they might harbor in their vicinity. The only objection that might be raised against this as it pertains to our scenario concerns proto-Saturn’s mass. Having accepted proto-Saturn to have been a *sub*-brown dwarf, one might wonder if it would have been massive enough to deliver the required heat. But, despite past theories, it has now been discovered that the retention and dissipation of heat is not necessarily reliant on mass. This was indicated by the two brown dwarfs which orbit around each other in the Orion Nebula, the calculated temperatures of which have put astronomers in yet one more quandary.

“The results [Robert Naeye reported] appear to have put astronomers in the awkward position of knowing *less* about brown dwarfs than they did before. The problem stems from the fact that the more massive of the two brown dwarfs is 140° C (252° F) cooler than its counterpart. This flies in the face of theoretical models, which confidently predict that massive brown dwarfs start off hotter and take longer to radiate away their heat of formation. ‘This is a mystery,’ says [Keivan] Stassun. ‘The less massive brown dwarf is hotter. No theoretical model of brown dwarfs predicts that.’”⁷

Meantime, astronomers continue to puzzle over the fact that Saturn “radiates a lot of heat, more than can be accounted for” from what it receives from the Sun.⁸ The latest theory that

¹ S. Kruglinski, “EL61, A Space Oddity,” *Discover* (December 2005), p. 10.

² A. Frank, *op. cit.*, p. 31.

³ *Ibid.*

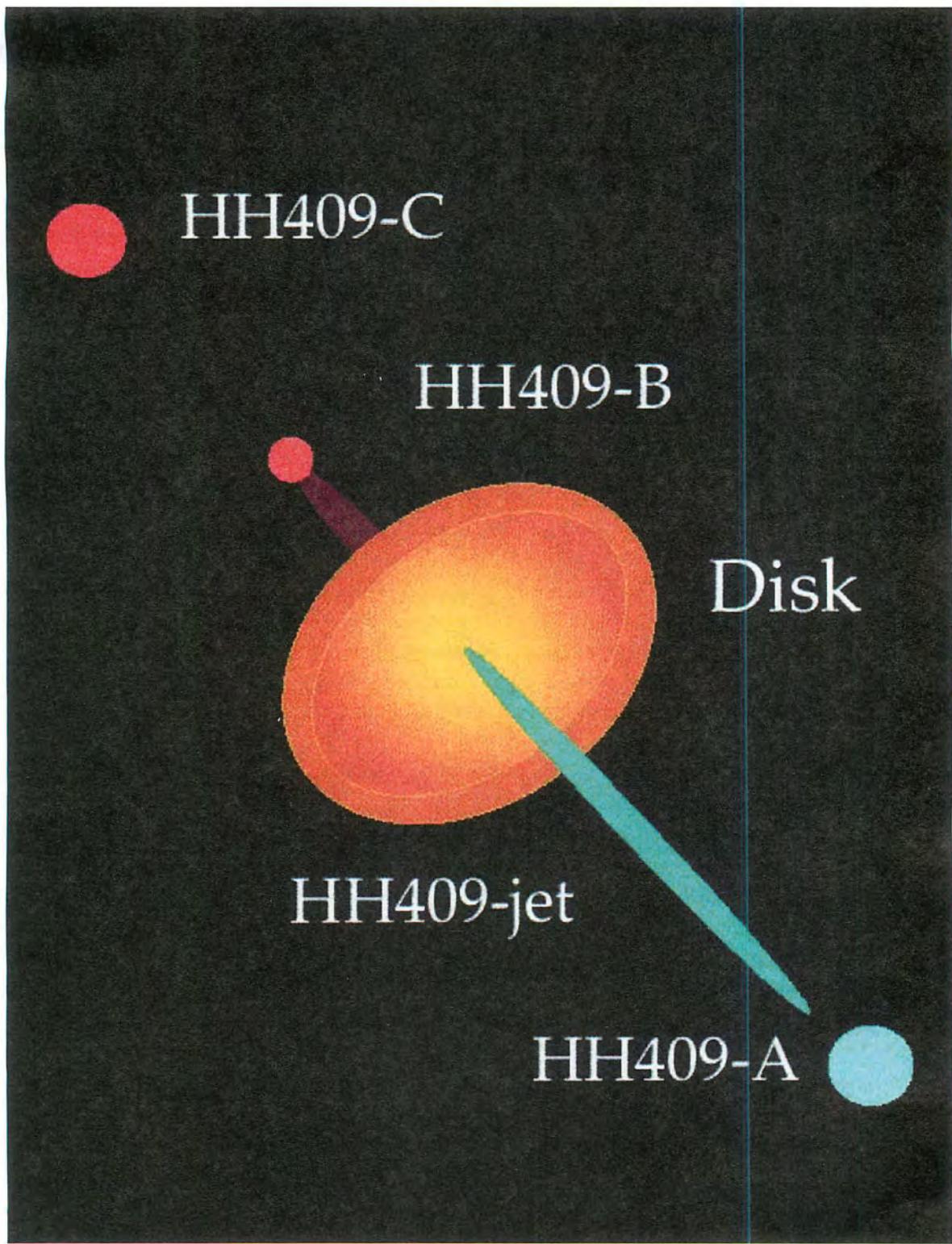
⁴ *Ibid.*, p. 35

⁵ See here, for instance, T. P. Ray, *op. cit.*, p. 16.

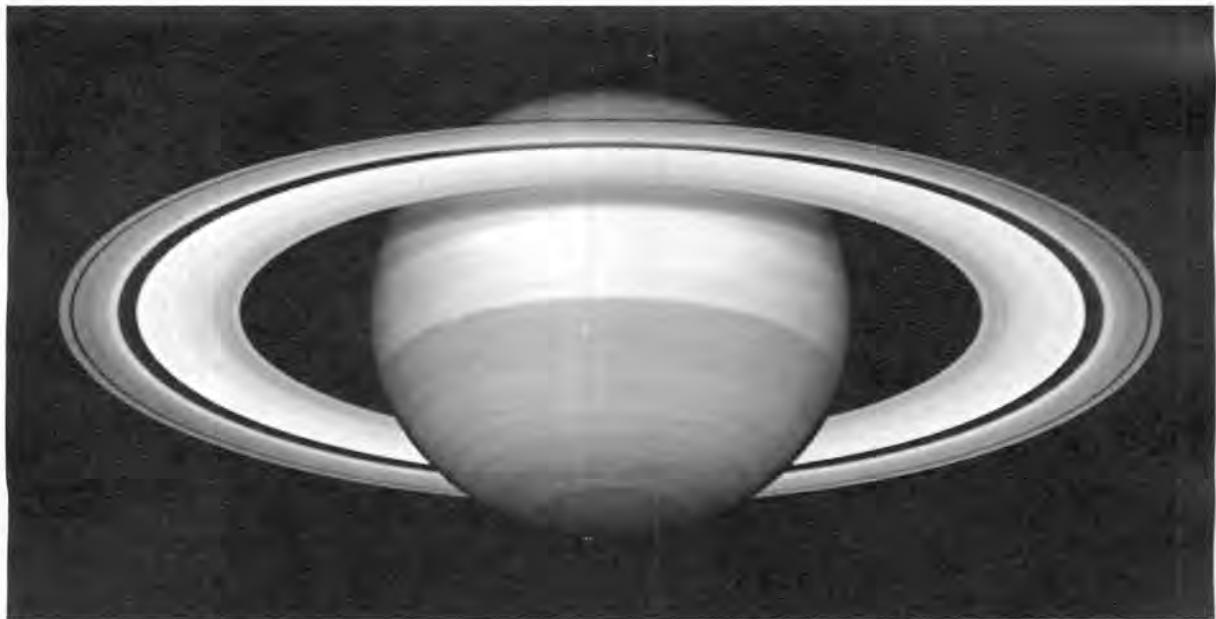
⁶ D. Cardona, *op. cit.*, pp. 472-476, and elsewhere in the present work.

⁷ R. Naeye, “Brown-Dwarf Enigma,” *Sky & Telescope* (May 2006), p. 18 (emphasis as given).

⁸ D. Hawksett, “Discovering Saturn,” *Astronomy Now* (July 2006), p. 61.



Planetesimal “knots” within the astral jet of Herbig Haro 409
(Illustration courtesy of NASA.)



Saturn's south pole—the warmest place on the entire planet.
(Photograph courtesy of NASA.)

has been formulated to account for this anomaly stresses the seemingly contradictory "fact" that Saturn's "lower temperatures" hinders helium from mixing with hydrogen, so that the helium percolates down through the hydrogen to fall as "rain" toward the core. And it is this rain of helium that is "slowly converting energy in Saturn's atmosphere into heat," even "the excess heat the planet generates, when compared to what it absorbs from the Sun."¹

POLAR CONVERGENCE

It is not just excess heat that troubled astronomers when it comes to the planet Saturn. Another particular discovery the nature of which amazed one and all was the planet's south pole which was found to be "warmer than the rest of the planet"²—warmer by about 4 degrees Fahrenheit³—which does not accord well with helium percolating toward the core as per above.

And then, as if all that was not enough, it was additionally revealed that the planet also shines with its own light. As low as this illumination is, it is sufficient to backlight the planet's clouds in what has been described as a Chinese lantern effect. But this, too, was then blamed on Saturn's surplus heat.⁴

¹ *Ibid.*

² A. Stone, "Cosmic Katrina," *Discover* (February 2007), p. 12; M. K. Baumann, *et al.*, *What's Out There* (London, 2005), pp. 136-137.

³ R. R. Britt, "Freak One-Eyed Monster Storm Spotted on Saturn," *SPACE.com* (November 9, 2006).

⁴ M. McKee, "Saturn Glowing Like a Chinese Lantern," *NewScientist.com* news service (October 21, 2006).



Saturn's south polar hurricane.
(Photograph courtesy of NASA.)

Revelations did not stop there. The Chinese lantern effect in question was then found to be brighter in the northern hemisphere, which additionally suggests that the clouds are lighter north of Saturn's equator.¹

But never mind these lighter northern clouds, which would mean a heavier atmosphere in the southern hemisphere. How about an actual hurricane, a colossal one at that, sustained perpetually at Saturn's south pole? 5,000 miles across, "big enough to engulf North America"²—or "two-thirds the diameter of Earth"³—it towers 45 miles high, with a wind speed of 350 miles per hour.⁴

What should be kept in mind here is that, according to the linear configuration we have been able to reconstruct from the mytho-historical record, Saturn's south pole would have been the very pole facing

Earth. It was the very pole from which the sustained Birkeland current would have extended in roiling fashion toward Earth. Saturn's heavier atmosphere and its ensuing hurricane, both occurring in its south pole, which pole happens to be the warmest locality on the entire planet, can thus be explained as a resultant consequence of its former churning vortex.

And what about the atmospheric hexagonal feature that came to light at Saturn's *north* pole? First discovered in 1988,⁵ it was recognized as the "zonally symmetric current" produced by "an atmospheric jet stream." As happened later with Saturn's south polar hurricane, the feature surprised astronomers because its position remained fixed.⁶ The jet, however, is far from static since it's known to twist around itself.⁶

Decades later, Saturn's hexagon topped the astronomical news again since clearer images from the Cassini spacecraft showed that the feature was still in place. 15,000 miles (25,000 kilometers) across—large enough to fit four Earth-sized planets within its borders—the structure extends about 60 miles (100 kilometers) down into Saturn's clouds. Billed as "one of the most bizarre weather patterns known,"⁷ this atmospheric oddity seems to have inspired

¹ M. McKee, *loc. cit.*

² A Stone, *loc. cit.*

³ R. R. Britt, *loc. cit.*

⁴ A. Stone, *loc. cit.*

⁵ *Icarus* 76 (1988), pp. 335-356.

⁶ P. J. Gierasch, "Hexagonal Polar Current on Saturn," *Nature* (January 26, 1989), p. 309.

⁷ SPACE.com Staff, "Bizarre Hexagon Spotted on Saturn," SPACE.com (March 27, 2007).

greater puzzlement than it did in 1988. The planetary atmospheric expert, Kevin Baines, was quite outspoken in his comments about the structure:

"We've never seen anything like this on any other planet. Indeed, Saturn's thick atmosphere, where circularly-shaped waves and convective cells dominate, is perhaps the last place you'd expect to see such a six-sided geometric figure, yet there it is."¹

Bob Brown, a team leader of the Cassini visual and infrared mapping spectrometer, compared the feature to the one at Saturn's *south* pole:

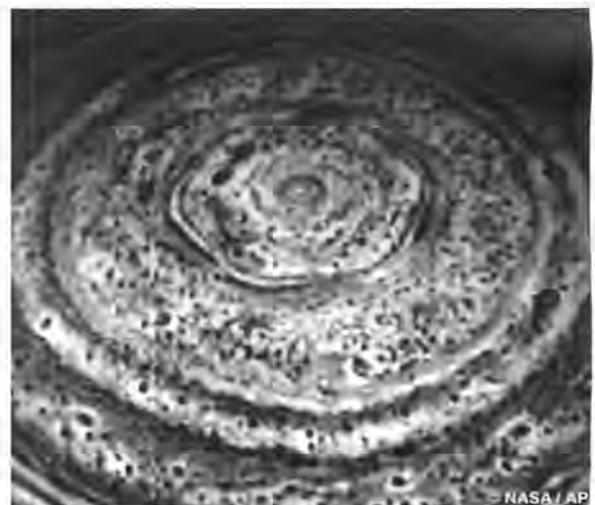
"It's amazing to see such striking differences on opposite ends of Saturn's poles. At the south pole we have what appears to be a hurricane with a giant eye, and at the north pole of Saturn we have this geometric feature, which is completely different."²

But, apart from its hexagonal shape, is the feature in Saturn's north pole really all that different from the one in the south? Is not a *stationary* jet stream—which is what the northern formation was deduced to be in 1988—akin to a *stationary* hurricane?

Despite the fact that it would have been entirely invisible from Earth, and therefore not documented in the mytho-historical record, proto-Saturn's sustained Birkeland current would have extended from *both* poles. What we thus see in Saturn's present poles, both north and south, are the atmospheric remnants of its former bi-polar jet. In that respect, it was just like any other jetting object in space.

THE INTERLOPING SYSTEM

The planet Jupiter is not only continuously being reported to be more star-like than planet-like,³ but also that it may originally have been much farther out in the fringes of the Solar system.⁴ As Michael Minton, quoting from M. Hanlon's *Worlds of Galileo*, phrased it: "One of the most startling discoveries [from the Galileo probe] was that 'Jupiter may be a long way from home, an interloper from the far outer reaches of the Solar System' that only



Saturn's north polar hexagonal jet stream.
(Photograph courtesy of NASA.)

¹ *Ibid.*

² *Ibid.*

³ See here, for instance, M. Minton, "Plait in Denial," *Chronology & Catastrophism Review* (2004:3), p. 33.

⁴ *New Scientist* (September 25, 2004), p. 15.

wandered to its present position relatively recently.”¹ Granted that the above does not have Jupiter entering the Solar System from outside it, such theorizing removes our own thesis from the realm of improbabilities in which it had been viewed in previous years.

In fact, astrophysicists have come even closer to our scheme than the above. According to a 2005 item on *Scientific American*’s web site, computer simulations have been successful in reconstructing a “close encounter between our sun and a passing star,” even though, as usual, they restricted the occurrence to “some four billion years ago.”² And yet, very much as in our own scenario, this event was considered to have possibly “played a role in shaping our solar system.”³ One “potential scenario” even showed “our sun kidnapping a planet or smaller object from the other star’s entourage.”⁴ Or how about having kidnapped the *entire* retinue?

FLARING ENERGY

The energy that would have been released by proto-Saturn’s flare-up can be compared to that from the highly magnetized pulsar dubbed SGR 1900+14. On August 27, 1998, it released a flare so powerful it came close to frying a number of artificial satellites.⁵

“When the wave of energy from the flare swept across the night side of Earth, it ionized the outer atmosphere and affected radio communications. The accompanying X-ray pulse had so much energy that even from 25,000 light-years away, it pushed the top of the ionosphere down from an altitude of 85 miles (120 km) to 60 miles (100 km).”⁶

Meanwhile, an 11-pound meteorite that slammed into eastern China in the mid 1980s has provided scientists with chemical and radioactive “strong new evidence that a massive stellar blast helped shape the evolution of our infant solar system.”⁷ The evidence in question consisted in the meteorite’s inclusion of chlorine 36, an element which is absent from the Solar System. Chlorine 36 can, however, be traced through its decay product of sulfur 36 which, in turn, could have been produced in two different ways, either through a supernova or through stronger solar radiation than at present.⁸ Faced with these two possibilities, it was almost logical for astrophysicists to opt for the second alternative, since “a supernova close to our budding solar system would have blasted our sun and its protoplanetary disk into bits.”⁹

But, for one thing, the early Sun had always been claimed to have been much fainter than at present, so that the production of chlorine 36 in the Solar System’s early “days” is more

¹ M. Minton, *loc. cit.*

² “On the Web,” *Scientific American* (February 2005), p. 9.

³ *Ibid.*

⁴ *Ibid.*

⁵ R. Zimmerman, “A Visit to the High-Energy Zoo,” *Astronomy*, Special Issue—*Explore the Universe* (February 2005), p. 41.

⁶ *Ibid.*

⁷ K. A. Svitil, “Our Solar System’s Explosive Early Years,” *Discover* (April 2005), p. 13.

⁸ *Ibid.*

⁹ *Ibid.*

than doubtful. And, for another, as is usual in similar cases, astrophysicists felt bound to place the event in question far into the dim past, when the Solar System planets, according to them, had not yet formed out of the Sun's so-called protoplanetary disk. Computer modeling has however indicated that an explosion from a supernova in our neighborhood "could have shrunk the disk but not necessarily destroyed it."¹ All told, the evidence was eventually found to comply more favorably with a supernova. But then forget about the dim past, which the meteorite evidence does not really call for, and think of a lesser flare than that of a supernova but at closer proximity, and one would be citing the very scenario proposed in this work.

Further discoveries have also come to light in relation to brown dwarf flare-ups. Beams of radiation emitted by brown dwarfs during these outbursts have now been calculated to be "thousands of times brighter than any released by the Sun."² These flares are now known to be produced above the brown dwarfs' magnetic polar regions and, in fact, they could be classed as super-aurorae. If solar storms can, as they do, wreak havoc on our world, one can just imagine the mayhem such super-flares would have caused on an Earth suspended directly beneath one of these flaring poles.

Fair enough, the ultra-bright flashes from one of these dwarfs seem to occur in a periodic cycle more or less every two hours, which is why it has been likened to a pulsar.³ But pulsars are believed to be created when stars erupt as supernovae.⁴ Is it not then possible that brown dwarfs which emit such short cyclical pulses had also undergone similar nova-like disruptions, very much in the manner we have proposed proto-Saturn to have done? In this respect it matters little whether pulsars pulse in lighthouse fashion due to their theorized high rotational speed,⁵ or whether they oscillate due to inherent electrical discharges.⁶

HAVOC AT THE SYSTEM'S EDGE

Brown dwarfs, which continue to be classed as being intermediate between stars and planets,⁷ are now believed to be as numerous in our galaxy as Sun-like stars.⁸ With the majority of them floating through the galaxy independently,⁹ the chances of a brown dwarf, and any planets it may harbor, coming within the clutches of our present Sun's domain of influence cannot be seen as far fetched as it once used to be. In fact, that an entirely different "source of plasma" could have entered the Solar System in the not-so-distant past was sug-

¹ *Ibid.*

² P. Rincon, "Dwarf Stars Emit Powerful Pulse," *BBC NEWS* (April 21, 2007); in full by G. Hallinan, *et al.*, "Rotational Modulation of the Radio Emission from the M9 Dwarf TVLM 513-46546: Broadband Coherent Emission at the Substellar Boundary?" *The Astrophysical Journal* (December 10, 2006), pp. 690 ff.

³ *Ibid.*

⁴ C. Kouveliotou, *et al.*, "Magnetars," *Scientific American*, Special edition—*The Secret Lives of Stars* (2004), pp. 72-73; W. Gater, "Celestial Clocks Can't Keep Time," *Astronomy Now* (April 2006), p. 17.

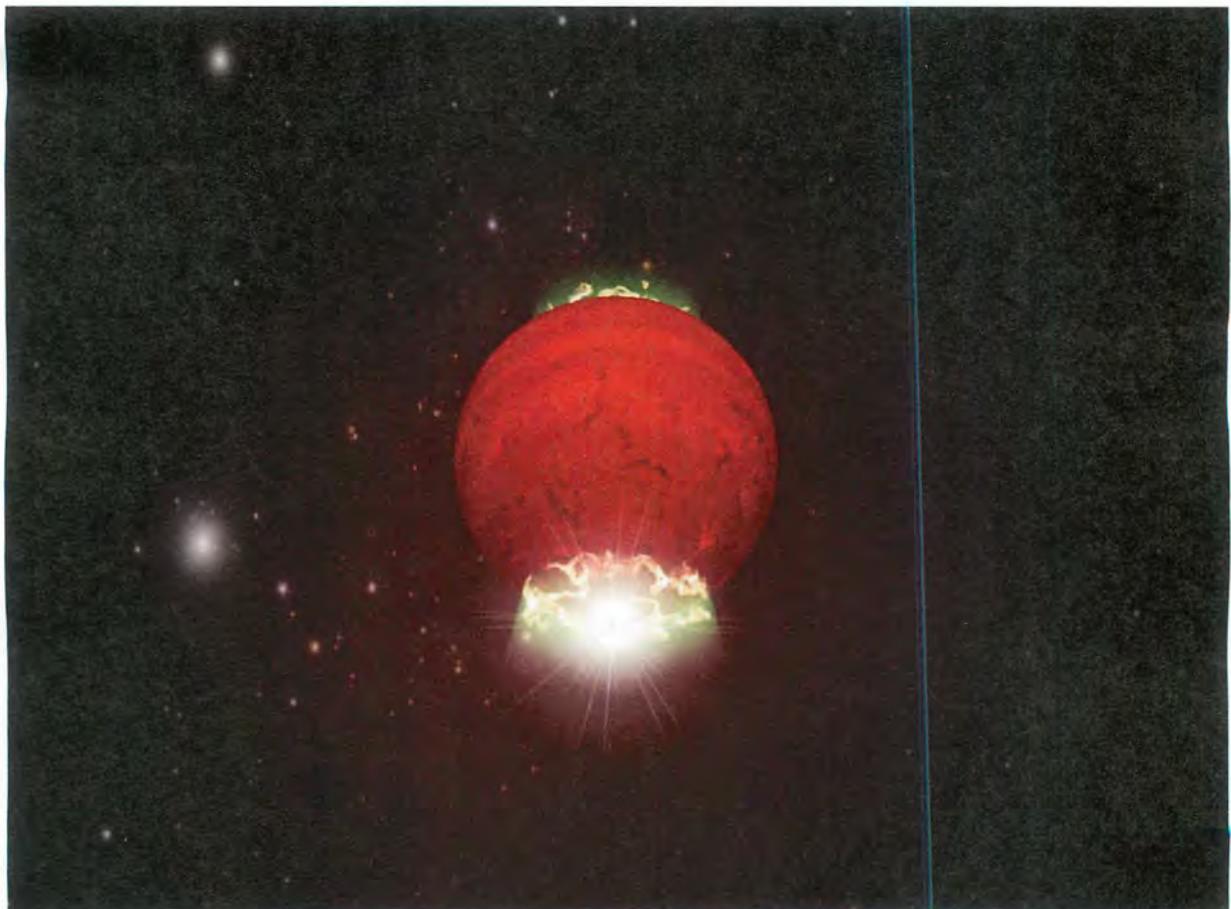
⁵ K. Cooper, "The Stop-Start Pulsar, *Astronomy Now* (June 2006), p. 14.

⁶ See here, for instance, D. E. Scott, *The Electric Sky* (Portland, Oregon, 2006), pp. 177-179.

⁷ S. Mohanty & R. Jayawardhana, *op. cit.*, p. 40.

⁸ *Ibid.*

⁹ *Ibid.*



Flaring brown dwarf star.
(Illustration courtesy of Hallinan, *et al.*, NRAO/AUI/NSF.)

gested in 2003.¹

The existence of a brown dwarf in an oddly shaped orbit around the Sun has even been speculated by the astronomer Davy Kirkpatrick in his belief, with that of others, that the Sun has to be in cahoots with a companion²—although, as noted earlier, a search for the binary has turned out nothing of the sort. But what if, as Frederick Hall once asked, the binary in question ended up being a member of our Solar System?³

The above is lent further credibility when we learn that the red dwarf designated Gliese 710 will pass within 1 light-year of the Sun in 1.36 (some say 1.5) million years from now.⁴

¹ A. L. Peratt, "Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity," *IEEE Transactions on Plasma Science* (December 2003), p. 1210.

² B. Dorminey, "Dark Threat," *Astronomy* (July 2005), p. 45.

³ F. F. Hall, "Solar System Studies," *AEON* I:1 (January 1988), p. 105; see also *idem*, "Solar System Studies," Part 2, *AEON* I:4 (July 1988), p. 27.

⁴ R. Talcott, "Comet Storm A'Coming," *Astronomy* (July 2005), p. 43; L. Marchesi, "Calm Before the Storm," in *ibid.*, (October 2005), p. 16.

If such a thing can happen in the future, it could well have happened in the past—and at closer range than 1 light-year.

Visible evidence within the Solar System that such an encounter did take place can be discerned in the Kuiper Belt since many of the objects that orbit within it do so at a sharply inclined angle to the plane of the ecliptic. Although not everyone agrees,¹ this has led to the belief that these outer bodies had to have been disturbed by the passage of a rogue star² or a large planet.³ Among these bodies is the one dubbed Sedna which, on an earlier page of this work, was suggested to have been expelled from the Kuiper Belt into its odd position outside the Belt's demarcation by the entry of the proto-Saturnian system into the Sun's realm of influence. Notice now what astrophysicists themselves concluded before the present book went into print:

“Sedna shouldn't be there. There's no way to put Sedna where it is. It never comes close enough to be affected by the sun, but it never goes far enough away from the sun to be affected by other stars...Sedna is stuck, frozen in place; there's no way to move it. And if there's no way to move it, basically there's no way to put it there—unless it formed there. But it's in a very elliptical orbit, and there's no way to form anything in an elliptical orbit like that. It simply can't be there. There's no possible way—except it is.”⁴

All of which led Mike Brown to theorize that Sedna could have been placed where it more or less is at present “in the earliest history of the solar system,” but only if “there used to be stars a lot closer than they are now.” Those stars could then have “affected Sedna on the outer part of its orbit” and then “moved away.”⁵ But which is the most logical scenario, that a bevy of normal stars could have shifted their position as much as Brown's theory requires, or that a single and much less massive brown dwarf happened to pass that way? If other objects within the Kuiper Belt can be thought of as having been disrupted by a passing star, then why could not Sedna have been exiled from the Belt?

By March of 2007, remnants of a smash-up between objects in the Kuiper Belt, marked as “the first ‘collisional family’,” were reported to have been discovered. The body which caused this “fiery collision” has been identified as a massive object “which was nearly the size of Pluto.”

What amazes me is the detailed scenario astrophysicists can reconstruct from the little that can be detected at this distance. Thus, for example, the culprit of this particular disaster, believed to have once been probably spherical, is now said to have been flattened into a “football-shaped” object. Its diameter has been calculated to be about 930 miles (1,500 kilometers), but believed to have probably been 20 percent larger before the collision. The

¹ M. Carroll, “The Key to the Kuiper Belt,” *Astronomy Now* (April 2006), p. 64.

² *New Scientist* (January 24, 2004), p. 14; *ibid.* (February 7, 2004), p. 19; D. Tytell, “The New Kings of the Kuiper Belt,” *Sky & Telescope* (October 2005), p. 29.

³ M. Carroll, *loc. cit.*

⁴ M. Brown (as told to C. Fussman), “The Planet Finder,” *Discover* (May 2006), p. 42.

⁵ *Ibid.*

unknown object it is supposed to have collided with “was roughly half its size” and traveling at nearly 7,000 miles per hour. The amount of energy that would have been generated by the blast “would have equaled about 10 billion nuclear bombs.” The impact would have blasted large icy chunks into space, sending the parent body reeling, causing it to spin end-over-end at the present rate of once every four hours. Moreover, the impact is said to have “spawned at least seven other rocky objects—and likely more—with diameters ranging from 6 to 250 miles (10 to 400 km). All of this on the “matching gray color” which is claimed to be unique to these particular bodies in the entire Kuiper Belt. And, needless to say, the accident in question has been dated to 4.5 billion years ago “when the Kuiper Belt was much more crowded than it is now and objects were more likely to bump into one another.”¹

It almost makes one think they were actually there to see it all transpire on the spot. Or who would have taken me seriously had I supplied such specificity in relation to proto-Saturn’s entry into the Solar system?

Further evidence of this disturbance is also indicated by Neptune’s chaotic satellite system and its relation to Pluto. This was first brought to readers’ attention in 1979 by the astronomer Tom Van Flandern who, with his co-author, argued that this unruly system resulted from Neptune’s encounter with a massive Solar System body.²

Wallace Thornhill, on the other hand, is of a mind with us when he thinks it more likely that the disruption in question was caused by the entry of the proto-Saturnian system into that dominated by our present Sun.³ While, on an earlier page, we had already posited that proto-Saturn would have probably picked up a few members from the Sun’s encircling Kuiper Belt, Wallace thinks that smaller bodies which had belonged to the proto-Saturnian system might have been torn from its weakening grip as it passed by Neptune.⁴ This, too, is a possibility. In fact it has been suggested that “a few of our minor planets beyond Pluto (like Sedna) originally belonged to another star.”⁵ That other star could very well have been the proto-Saturnian sub-brown dwarf.

Which of these two scenarios is the most likely to have transpired, I will leave for others to decide, although, to be sure, there is nothing against the possibility that both events transpired. There is nothing against proto-Saturn having lost some of its minor members in its retinue while gaining others in exchange. And, to be sure, this, too, has been suggested. Thus, according to Scott Kenyon and Benjamin Bromley, respectively hailing from the Smithsonian Astrophysical Observatory and the University of Utah, a passing star could have “stolen objects from the outer Kuiper belt,” while some of the other objects in the Belt could very well be “alien worlds that were captured from the passing star in a two-way swap of material.”⁶

¹ K. Than, “Giant Remnants of Cosmic Collision Found Beyond Neptune,” SPACE.com (March 14, 2007).

² T. Van Flandern & R. S. Harrington, “The Satellites of Neptune and the Origin of Pluto,” *Icarus* 39 (1979), pp. 131-136.

³ W. Thornhill, “Here We Go Again,” *THOTH* (electronic newsletter published by KRONIA Communications) I: 25 (November 3, 1997), p. 8.

⁴ *Ibid.*, p. 9.

⁵ M. Turnbull, “Where is Life Hiding?” *Astronomy* (October 2006), p. 63.

⁶ R. R. Britt, “The Solar System Gets Crazier,” Space.com (December 19, 2005).

ARCTIC ORIGINS

Just before the turn of the 19th century, Charles Lyell himself found reason to broadcast the profusion of greenery the remains of which had long been found within the Arctic Circle.

"In the greater part of the Miocene and the preceding Eocene epochs [he wrote] the flora and fauna of central Europe were subtropical, and a vegetation resembling that now seen in Northern Europe extended into the Arctic regions as far as they have yet been explored and probably reached the pole itself."¹

During that same time, other investigators continued to draw attention to the same state of affairs. Among them was the Swiss geologist, Oswald Heer, who went even further by postulating that the Arctic had served as the center of new generations of plants which then radiated to more southerly latitudes.² There was also his Scottish counterpart, Archibald Geikie, who not only reached a similar conclusion, but also that such had been the case at a more recent period than Lyell had believed—in fact during the Quaternary.³ And while all of this has already been covered in greater detail in my previous volume,⁴ Mark Harrison has more recently announced that the earliest signs of life that had thus far been detected come from within the Arctic Circle. This revelation was so radical it immediately came under severe attack, although Harrison has done an excellent job in rebutting the criticism raised against the hypothesis.⁵

What is now additionally ascertained is that the "duration of the Ice Age...matches the duration of the Early Stone Age, or Paleolithic."⁶ And that: "Throughout the whole of the Pleistocene...the cultural level of the ancestors of modern humans remained essentially unchanged."⁷

FUTURE RETURN OF ICE

"The interglacial period that has seen the rise of human civilization and the disappearance of the megafauna is ending," wrote Windsor Chorlton in 1983, "and there can be little doubt that the great glaciers of the Ice Age will return."⁸ At the time statistics suggested different times in the future at which Earth's deep-freeze was to re-occur, the most quoted of which

¹ C. Lyell, *Principles of Geology*, Vol. I (1830-1876, 11th edition), p. 231.

² I. C. Johnson, "Anomalous Occurrence of Crocodilia in Eocene Polar Forests," *Chronology and Catastrophism Review* XIV (1992), p. 8.

³ A. Geikie, *Textbook of Geology* (London, 1882), pp. 873 ff.

⁴ D. Cardona, *op.cit.*, pp. 363, 368, 384.

⁵ M. Harrison, "In Search of Akilia's Heel: The Controversy Over the Earliest Evidence for Life on Earth," paper given at the seminar sponsored by the School of Earth Sciences at the Australian National University, September 25, 2003.

⁶ E. Zanger, *The Future of the Past* (London, 2001), p. 114.

⁷ *Ibid.*

⁸ W. Chorlton, *Ice Ages* (Alexandria, Virginia, 1983), p. 149.



The ice-free Arctic.

was sometime between 3,000 and 7,000 years from now.¹ But most of these calculations were based on Earth's deviations in its orbit during the past million years,² to say nothing of the Sun's variation in heat dissipation during more or less the same period. Most writers on the subject, however, contended themselves with how civilized humanity would, or would not be, able to cope with the forthcoming disastrous change. Yet even then glaciologists were

¹ *Ibid.*

² *Ibid.*

honest enough to admit that they could not be certain how it would really turn out since they were still far from confident how it had all transpired in the first place.

"Unfortunately for humankind's peace of mind [wrote Chorlton], the number of processes involved in the triggering of an ice age, and the relationships among them, approach the infinite. Few of these processes are understood fully enough to permit a confident projection of their behavior, let alone of their cumulative effects."¹

According to others we are *still* living in the Ice Age, even if "in only a slightly warmer spell of it."² And, what is worse, there are those who have claimed that, as far as Earth's northern latitudes are concerned, our world already appears to be cooling.³

By 1992 it was estimated that the next ice age would chill the world no later than 2,000 years from now.⁴ One theory even suggested that Earth's greenhouse effect may bring it on sooner.⁵ The climate swings brought on by the Milankovitch cycles were no longer seen by some as having been profound enough to cause a "glacial crash."⁶

As we all know, the fear of an impending ice age has now been superseded by that of global warming. I will not here go into any of that besides stating that Earth's temperature will always fluctuate up and down through the ages as it has done since time immemorial. Earth's variations in its orbital path around the Sun are minimal enough, but not so the Sun's own disparity of heat dissipation. Earth *will* continue to warm up and it *will* cool again. But, barring any major accidents between the bodies of the Solar System, it will never boil nor will it ever freeze again to the extent of previous ice ages. All calculations conducted at present in an endeavor to find out what might transpire in the future in this respect are based on computations concerning what is believed to have transpired in the past. In all these estimates the Sun is made to play an influential role since it is not yet generally accepted that it had nothing to do with ice ages in the first place. Until scientists remove Earth out of the Solar System and couple it with its primeval proto-Saturnian sun, all such reckonings will prove in vain.

BEHAVIORAL METAMORPHOSIS

With the heat released by the proto-Saturnian flare-up; the melting of the northern glaciers; the hurricane-strength winds created by Earth's rotational braking; rains of sticky, when not burning, naphtha; the sweeping of the oceans over vast areas of the land; global volcanism; diastrophism; earthquakes; additional recurring floods in areas outside former glacial demarcation; the tremendous loss of life both in the animal kingdom and among

¹ *Ibid.*

² S. W. Matthews, "Ice on the World," *National Geographic* (January 1987), p. 84.

³ *Ibid.*, p. 103.

⁴ G. Easterbrook, "Return of the Glaciers," *Newsweek* (November 23, 1992), p. 62.

⁵ *Ibid.*

⁶ *Ibid.*

human beings; to say nothing of the eventual reclamation and greening of the previous glaciated areas; survivors of the catastrophe would have found themselves in an entirely new world.

As if all that was not enough, our ancient ancestors found themselves in a totally different electrical environment. And this, too, had its effect on the human psyche. As is now common knowledge, the magnetic fields we have treated of in the past pages of this work are intricately entwined with the processes of life itself.

"At the moment it is difficult to assess human sensitivity to weak magnetic fields, such as that of Earth [wrote Frederic Jueneman], but it is well-known that biological organisms reorient themselves in response to magnetic effects. Lower lifeforms, as bacteria and protozoa, show reduced reproductive activity in the absence of magnetism, and smaller mammals and birds also show strange behavior and fundamental changes in motor response when shielded from magnetic fields for some length of time."¹

The late Earl Milton had even more to say about the subject. "I am impressed by what I have read," he wrote. "In almost every field I encounter I find the imprint of electricity."²

"The books tell me that when there is a surplus of negative ions in the atmosphere we humans feel better [he went on]. Other books tell me that a strong magnetic environment superimposed on the weakly magnetic field of the Earth improves plant growth."³

But also:

"The fatality rate increases by about a factor of 3 when the Earth is disturbed magnetically. I live in a region of the world where the Chinook winds blow...When they blow, the atmospheric pressure varies rapidly and the electric field above the Earth's surface fluctuates; people get migraine headaches. After about 3 days of continuous winds people start to fight over trivial things, psychological disturbances increase, murders and suicides become more likely. There is a lot of evidence that comparable environmental stress occurs in other places where electric or magnetic disturbances are common."⁴

The validity of the above concise commentary is evidenced by a research program called Project Migraine conducted by the biologist Christopher Dodge in 1980 which indicated that a sufferer of migraine headaches was uniquely sensitive to alterations in electromagnetic

¹ F. B. Jueneman, *Raptures of the Deep* (Des Moines, Illinois, 1995), p. 8.

² E. R. Milton, "Electric Stars in a Gravity-Less Electrified Cosmos," *S.I.S. Review* V:1 (1980/81), p. 8.

³ *Ibid.*

⁴ *Ibid.*

waves that probably resulted from changing pressures in Earth's crust just prior to a volcanic eruption.¹ And if this applied to one particular individual, it must surely apply to others.

Other studies have since then indicated that psychiatric malfunctions tend to rise significantly with high levels of solar radioflux and sudden magnetic disturbances in the ionosphere.²

Can it be imagined what humanity might have suffered through these additional effects during and after the proto-Saturnian system's entry into the Solar System which brought it into direct contact with the new electrical potential of our present Sun? Can one imagine what the braking of Earth's rotation, with its accompanying atmospheric disturbances, would have wrought on mankind?

But even this, coupled with Earth's tectonic pangs, was not the greatest influential cause in the change that occurred in the human psyche due to proto-Saturn's glorious, and relatively destructive, flare-up. What changed the most, and what altered the minds of our ancestors more than anything, was the transformation that transpired in the sky. After untold ages of sameness, during which Paleolithic man took the immobile sun suspended in Earth's north celestial sphere and its attendant column of tapering light for granted, a revolutionary transformation ushered in a series of cosmic events, catastrophic in their own right, which continued to unfold for generations to come. What had been an inanimate fixture, now seemed imbued with life. And because man was intelligent enough to understand that Earth's cataclysmic upheaval had been caused by this newly active entity, he sought to appease it in an effort to keep it from repeating its destructive actions. From that time on, man sought to emulate it, both in its assumed evil and benign aspects. Men tried to imitate what *it* did, even to the point of exterminating some of their own kind, in order to condone its actions in the belief that it would thus recognize them as its own kith and kin.

In time, there appeared other bodies suspended between Earth and proto-Saturn and they, too, involved themselves in the cosmic drama that continued to unfold down through the ages. To ancient man, these newly visible bodies were all imbued with life, a life that was not only mysterious in its assumed disposition, but also extremely potent. The power that these bodies were seen to wield was far beyond anything man had known before. And while this power could be imitated, it could never be duplicated. Thus it was that these cosmic bodies developed into what eventually became known as gods—celestial entities that had no counterparts on Earth and yet with an incredible power over it. And as our ancestors saw fit to imitate the proto-Saturnian deity, so did they continue to emulate the deeds of these newly developed gods that were soon to dominate the celestial realm. As man was to remember in times to come: "Thus the gods did; thus men do."³ The well-being of the human race became dependent on what evolved into a sacrosanct decree. As later pundits were to admit: "We must do what the gods did in the beginning."⁴ It was in this manner that ritual, and eventually religion, took an obsessive hold on the human mind.

¹ "Doomsday Headaches," *Science Digest* (February 1982), p. 99.

² *Science Frontiers* (January-February 1994), p. 1.

³ *Taittiriya Brahmana* I:5:9:4.

⁴ *Satapatha Brahmana* VII:2:1:4.

END OF ACT TWO

We are now in a position to revamp the set of theses we reconstructed in the previous volume devoted to the study which we have continued to develop in the present work.¹ We must now expand, reshuffle, and renumber our register in order to accommodate a more coherent chronological scheme that will include proto-Saturn's flare-up and all that it entailed. Our refined set of hypotheses will now read as follows:

Hypothesis #1: That the present giant gas planet we know by the name of Saturn had previously been a sub-brown dwarf star free floating in space outside the demarcation of the present Solar System.

Hypothesis #2: That Earth was at that time a satellite of this proto-Saturnian sub-star which, because of its proximity, loomed large in the sky as a distinct disk larger than the present apparent size of the full Moon.

Hypothesis #3: That, during this period, a nebulous entity, which we have conjectured to have been a circumstellar disk, surrounded the proto-Saturnian primary in its equatorial plane. This nebulous cloud seems to have been what our ancient forefathers alluded to as Chaos.

Hypothesis #4: During this same period, the proto-Saturnian orb was described as having floated over an apparition which looked like a sheet of celestial water, a cosmic ocean. Whether this "water" was the same conjectured circumstellar disk, which would have given the appearance of a celestial whirlpool, an auroral manifestation, or a combination of both phenomena, is not now easily determined.

Hypothesis #5: That this proto-Saturnian assemblage was at first the only visible celestial entity in Earth's primordial sky.

Hypothesis #6: That, as seen from Earth, the proto-Saturnian primary did not rise or set, but remained visibly immobile at all times.

Hypothesis #7: That proto-Saturn's immobility was due to the fact that Earth was stationed directly "beneath" proto-Saturn's south pole and that, from Earth, proto-Saturn appeared to be permanently fixed in the north celestial sphere, the very place which is now occupied by the Pole Star. What this also means is that Earth and proto-Saturn were linearly aligned with both of them sharing the same axis of rotation.

Hypothesis #8: That what appeared to be a slow-twirling narrow beam of tapering light connected the proto-Saturnian orb to Earth's north polar region. This ray from above is interpreted as a sustained plasma discharge in the form of Birkeland current, a scaled-down version, or the slowly deteriorating remnant, of a so-called plasma "jet" as presently observed streaming from galactic and stellar objects, and as in fact has been detected emanating from brown dwarf stars.

Hypothesis #9: That Earth was originally engulfed in what our ancestors persistently referred to as darkness. This was an age which, despite its remoteness in time, ended up etching itself indelibly in human consciousness. It was a time during which the Sun, the Moon, and the stars were not yet visible in the sky. Proto-Saturn ruled alone. And yet this

¹ See here especially D. Cardona, *op. cit.*, pp. 490-492.

age, we have also found out, could not have been one of *total* darkness, and that, in fact, mankind itself remembers that the proto-Saturnian deity actually shed a feeble light. The terrestrial environment during this age therefore seems to have been bathed in a perpetual twilight or, rather, a protracted dawn, which man remembered as the dawn of Creation.

Hypothesis #10: That this system was embedded in a plasmasphere centered on proto-Saturn, the opacity of which enabled proto-Saturn's radiation to be reflected toward all terrestrial latitudes.

Hypothesis #11: That Proto-Saturn's illumination, relatively feeble as it might have been, together with the plasmasphere's opacity, are recognized as the means by which the stars were kept from visibility. The Sun, on the other hand, was still too far to be seen, while the Moon had not yet been captured by Earth.

Hypothesis #12: That, under the scheme described above, Earth would have received enough heat to sustain life. This heat would have radiated directly from proto-Saturn's close proximity above Earth's northern hemisphere. The southern latitudes would also have received sufficient warmth, *even if a feebler light*, from the radiation that would have been reflected off the inner surface of proto-Saturn's plasmasphere within which Earth would have been enveloped. In the northern hemisphere, this indirect radiation would have added to the direct heat and light received from above Earth's northern pole. Thus, during this time, Earth's climatic environment would have been one without seasonal change, luxuriating in one single season of eternal spring. (It should, however, be kept in mind that Earth would also have been subjected to slightly different latitudinal temperatures.) Tropical and/or subtropical flora and fauna were thus able to thrive in Earth's northern region, even within the present Arctic Circle, and the possibility exists that this flora and fauna originated in these regions before migrating to more southerly latitudes.

Hypothesis #13: That, due to Saturn's immobility, and the absence of the Sun, ancient man had nothing at his disposal by which he could calculate the passage of time.

Hypothesis #14: That, as the proto-Saturnian system drew closer to the present Sun's domain of influence, their plasmaspheres came in contact with each other, electric potentials clashed, and cosmic sparks began to fly.

Hypothesis #15: That the first sign of this plasmaspheric contact was the electrical imbalance suffered by the jet-like Birkeland column which joined proto-Saturn to Earth, which jet then underwent a series of visible instabilities the likes of which mankind commenced to reproduce in his sacred art down through the years.

Hypothesis #16: That, following this series of awe-inspiring volatilities, the jet was seen to retract itself and disappear within the proto-Saturnian orb that had originally been responsible for its very birth.

Hypothesis #17: That, within a short time of that event, due to the disproportionate electrical energy between proto-Saturn and the Sun, the former flared up in a glorious burst of light that dispelled the gloom, an event that went down in the mytho-history of mankind as Day One.¹

¹ Genesis 1:5.

Hypothesis #18: That immediately upon and due to proto-Saturn's flare-up, Earth and its inhabitants were subjected to an appalling heat wave while being engulfed in a tremendous sheet of cosmic radiation, including X-rays and other harmful extraterrestrial beams and particles.

Hypothesis #19: That the proto-Saturnian system's encounter with the Sun resulted in the reversal of Earth's magnetic field—or, more correctly, its dipole—which was the combined reaction of the Sun's superflare-like discharge together with proto-Saturn's own flare. This would then have culminated in a boost of the terrestrial field which would then have commenced to decay once more in its attempt to adjust to the Sun's own field of influence.

Hypothesis #20: That, very much like the Sun's flares achieve at present on a much smaller scale, proto-Saturn's flare-up braked Earth's rotational speed, with its former rate of rotation resuming not long after.

Hypothesis #21: That this temporary braking effect resulted in the oceans' incursion over large areas of the land as well as additional heat due to friction between Earth's crustal layers which also caused tremendous tectonic activity including global volcanism, earthquakes, landslides, and various other upheavals.

Hypothesis #22: That the calamities incurred by Earth throughout these events, including cosmic radiation, were responsible for great loss of life among both beasts and the human species. Vast hordes of animals which existed during the Ice Age were completely exterminated, never again to grace the land or the oceans they once inhabited.

Hypothesis #23: That the cosmic radiation released by proto-Saturn's flare-up would have also resulted in the birth of mutated defective offspring both among animals and humankind, but that, with some possible exceptions, including racial divergence among humans, these mutations were not passed on to following generations.

Hypothesis #24: That, due to the heat released by proto-Saturn's flare-up, as well as that incurred through Earth's frictional tectonics, the glaciers of the Pleistocene Ice Age commenced to melt, thus causing further floods and mud slides. Previous glaciated areas were thus reclaimed and, in time, the greening of these regions added tremendously to the habitability of Earth's northern hemisphere.

Hypothesis #25: That, following its flare-up, proto-Saturn continued to shine much brighter than it had previously done, bright enough for ancient man to have persistently alluded to it as a sun.

Hypothesis #26: That this primordial proto-Saturnian sun shone during that time we presently allude to as the night.

Hypothesis #27: That, as the proto-Saturnian system moved deeper into the Solar System, its plasmasphere changed its electromagnetic wavelength, thus robbing it of its former near-opacity. It was during this time that ancient man was able to catch a glimpse of the slowly approaching Sun which, at first, appeared no bigger than a star, but which grew ever larger and brighter as Earth continued to draw nearer.

Throughout this work we have dated proto-Saturn's flare-up, the end of the Pleistocene Ice Age, and all that these entailed, to c. 10,000 years ago. This date is based on a statistical

analysis of accumulated dates from various disciplines which average out to the proposed figure. Granted that some of these accumulated dates were derived from various radiometric techniques, how do we reconcile that with our oft-stated doubt concerning the validity of these methods? Before we are accused of attempting to have our cake and eat it too, please keep in mind that our posited date has been presented merely as a benchmark figure. One can perhaps use the adage that where there is smoke there is bound to be a fire. But it goes beyond that since it is our belief that if these dates are wrong, they are all wrong by the same amount. Move any one of them up or down the geologic timescale, and the rest would move accordingly. For the time being, it matters little whether proto-Saturn's flare-up occurred 10,000 years ago, earlier than that, or later. What remains of importance is that the Pleistocene Ice Age came to an abrupt end due to the flare-up in question. Until a better technique can be found for the absolute dating of geologic strata and palaeontological remains, to say nothing of human artifacts, that should be enough.

It should finally be stressed that while edifices can easily, and sometimes suddenly, be destroyed, they are not so easily, or so suddenly, erected. While we believe we have now found the solution concerning the end of the Pleistocene Ice Age, we have come up with nothing concerning its inception. Worse than that, while it might be readily understood how the heat unleashed by proto-Saturn's flare-up would have melted Earth's northern glaciers, would it not be stretching things too far were we to claim that similar events would have also melted the glaciers of previous ice ages? After all, proto-Saturn's disruptive flare at the end of the Pleistocene was occasioned by the system's entry into our present Sun's domain of influence. But this event could only have transpired once. What, then, could have caused the melting of previous glaciated areas? More importantly, what could have caused these areas to be glaciated in the first place? That is a problem, among others, the very next volume of this series intends to solve.

Stay with me.

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ABOUT THE AUTHOR

Dwardu Cardona was born, raised, and educated in Malta, Europe, from where he emigrated to Canada in 1959. Less than a year later, in mid-1960, he became involved in the study of catastrophism and the reconstruction of the Solar System's cosmic history. He has, since then, acted as a Contributing Editor for *KRONOS* and, later, as a Senior Editor for the same periodical, and is currently the Editor of *AEON*. He was a Founding Father of the Canadian Society for Interdisciplinary Studies (now defunct), and has acted as a consultant on mythology and cosmogony for *Chronology and Catastrophism Review*, which is the official organ of the British-based Society for Interdisciplinary Studies. He has also acted as the Series Editor for the *Osiris Series* of books sponsored by Cosmos & Chronos.

As a writer, Cardona has now published well over a hundred articles in various periodicals, most of them on the subject covered in the present volume, as well as the book *God Star*, which forms a prequel to the present work. He has additionally lectured at the University of Bergamo, in Italy, and at various organizations in Canada, the United States, and England. He presently makes his home, together with his wife, in Vancouver, British Columbia, Canada.

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For more than a century, there has been nearly one theory a year to account for the cause of ice ages. Few mysteries of natural science are as vexing. And just as troublesome is the question of what brought these ages to an end.

Following the hypothesis proffered in *God Star*, the prequel to this work, *Flare Star* sets out to show that Earth's last Ice Age came suddenly to an end due to the cosmic catastrophe that was caused by the proto-Saturnian system's entry into the present Sun's domain of influence.

Very much as in *God Star*, this is partly demonstrated through the message contained in mankind's mytho-historical record.

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The very concept of deity, the origin of which was traced in *God Star*, is here explored further since man ended up blaming his God for the source of the event that forever changed his world. Nor is this to be wondered at, seeing as the cause in question did proceed from the very entity that man himself found reason to endow with what he later termed its divine powers.



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